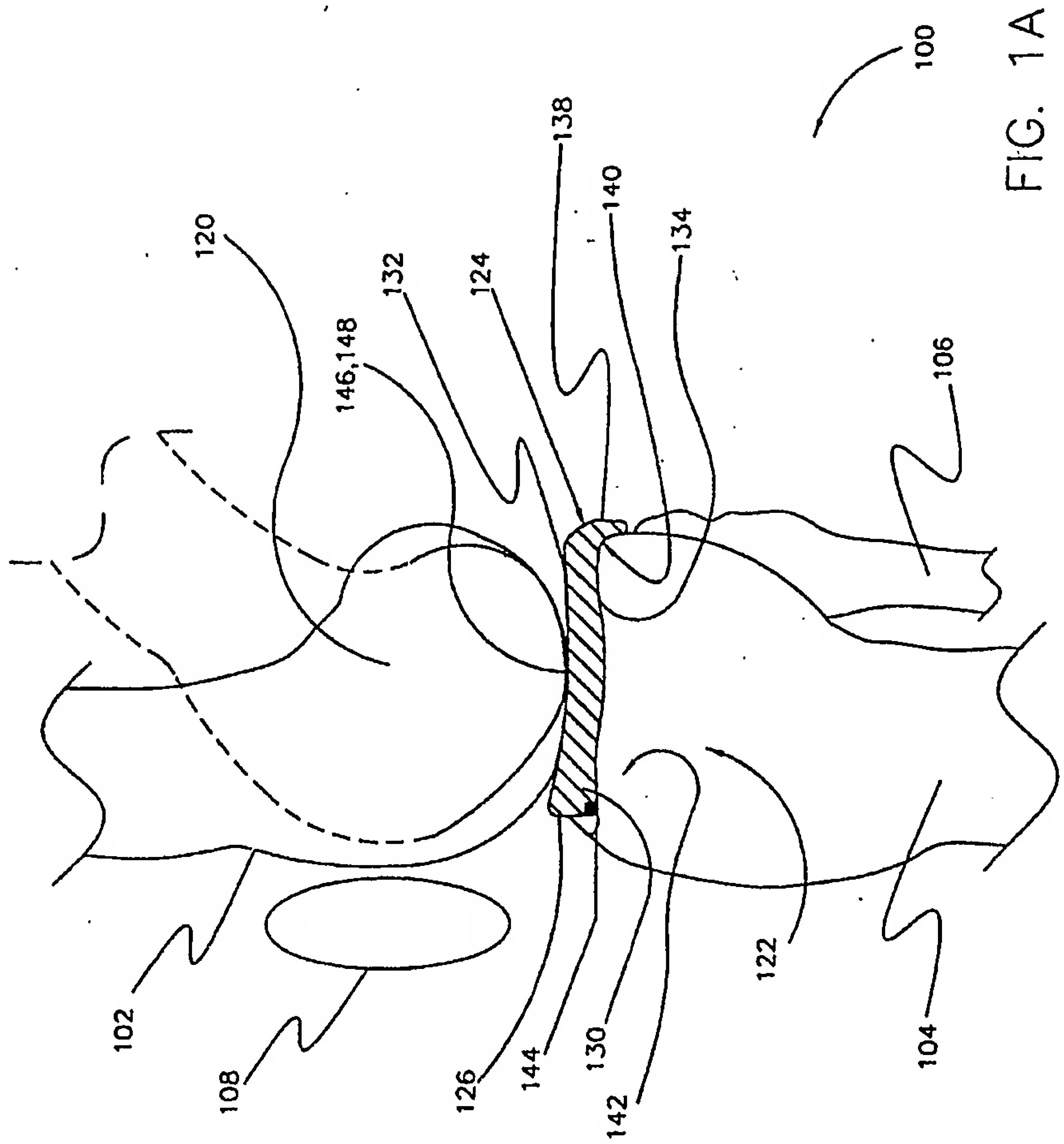

100
120
146,148
132
124
138
140
134
106
102
108
126
144
130
142
122
104

FIG. 1A

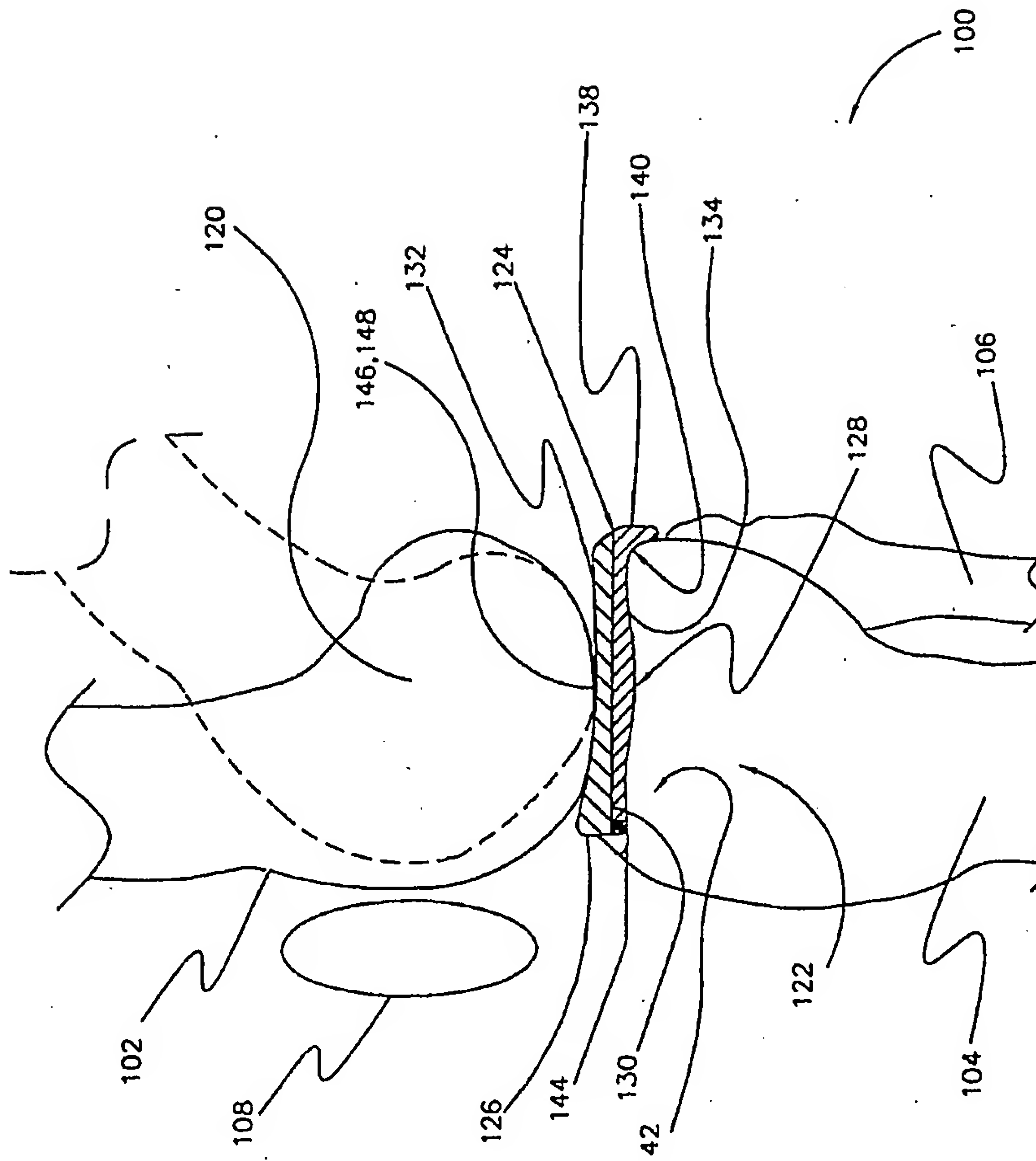

100
138
140
134
120
132
124
146,148
106
128
102
108
126
144
130
142
122
104

FIG. 1B

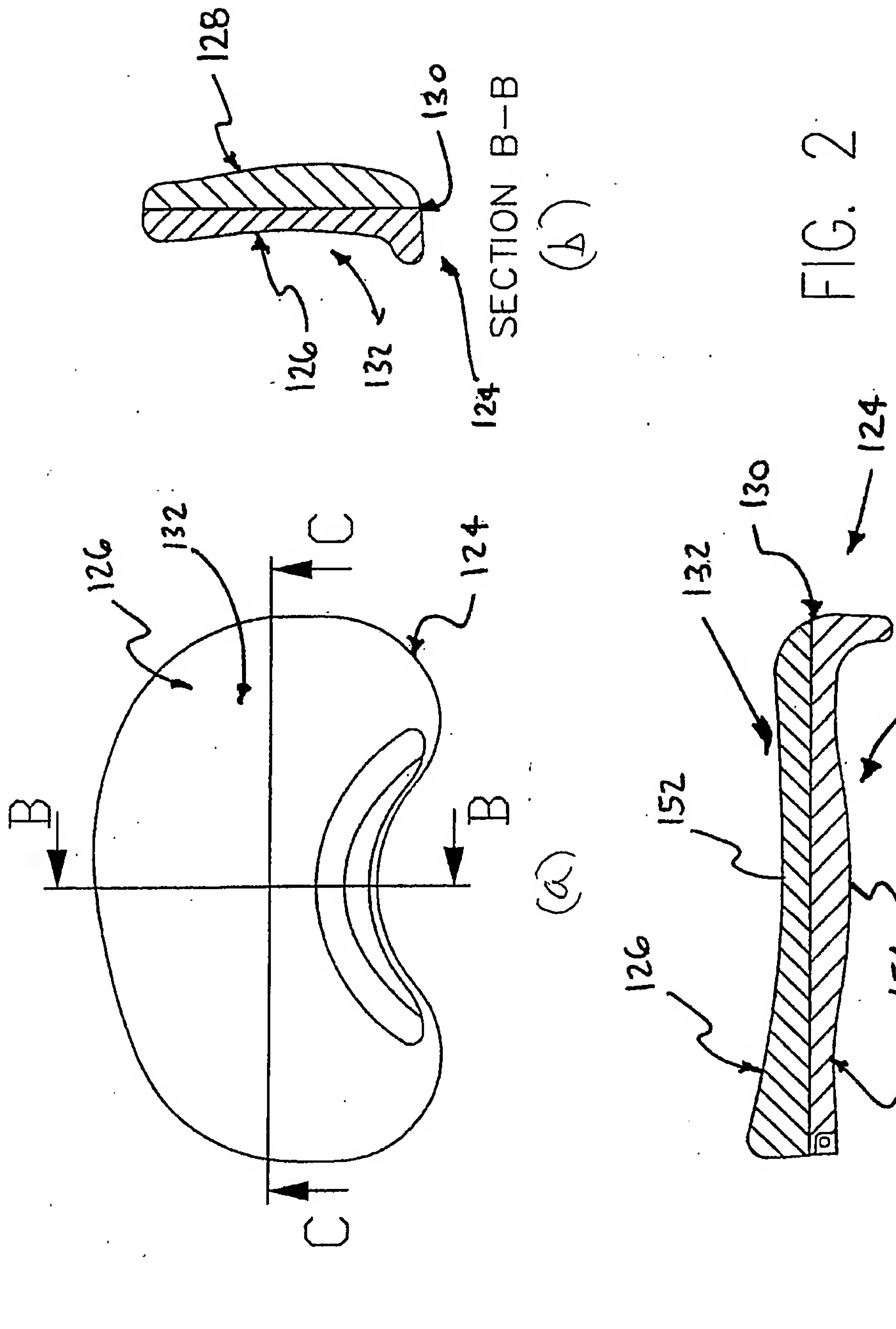


FIG. 2

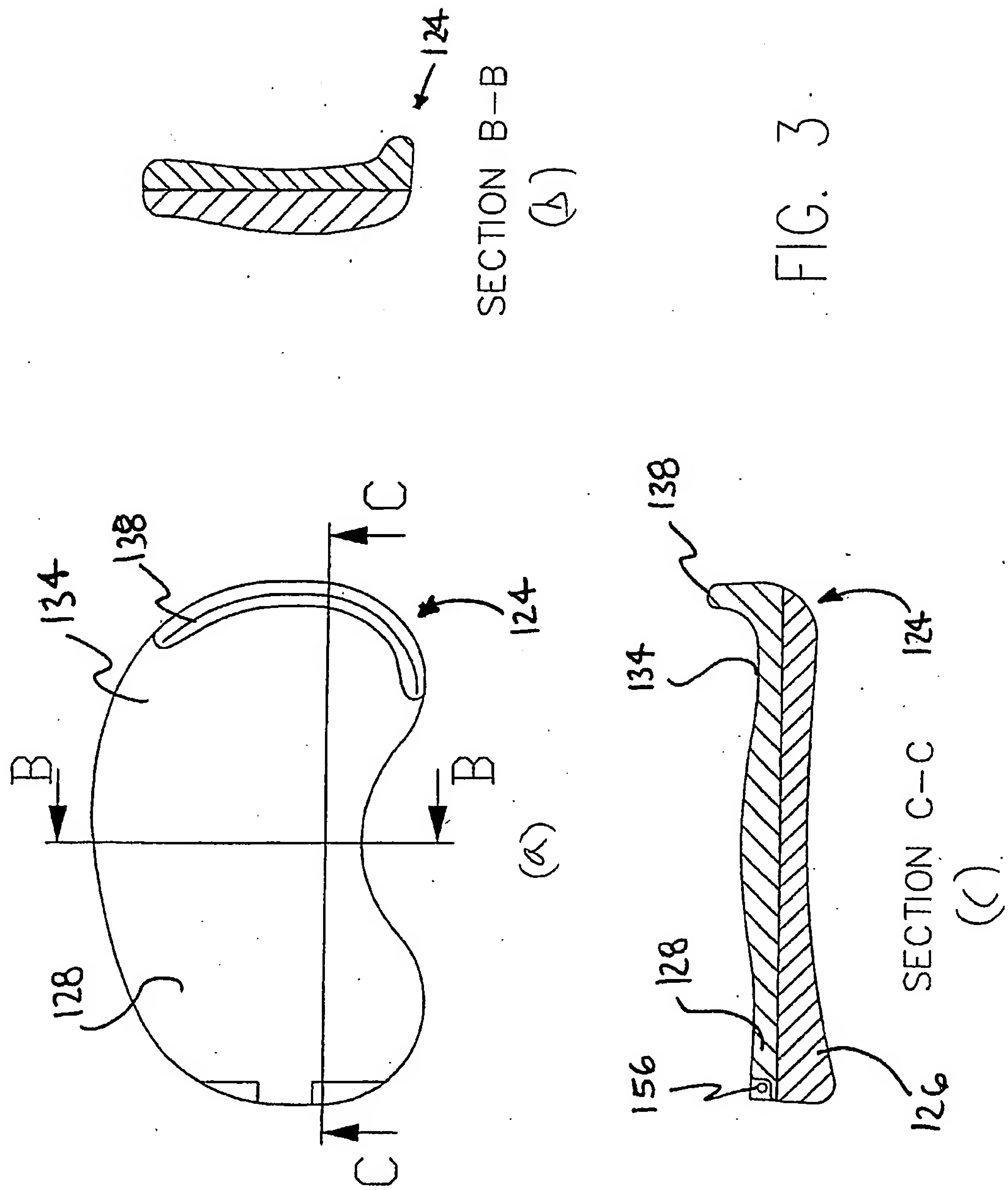

124
SECTION B–B
(b)
C
C
B
B
134
138
124
128
(a)
138
134
124
SECTION C–C
(c)
128
156
126

FIG. 3

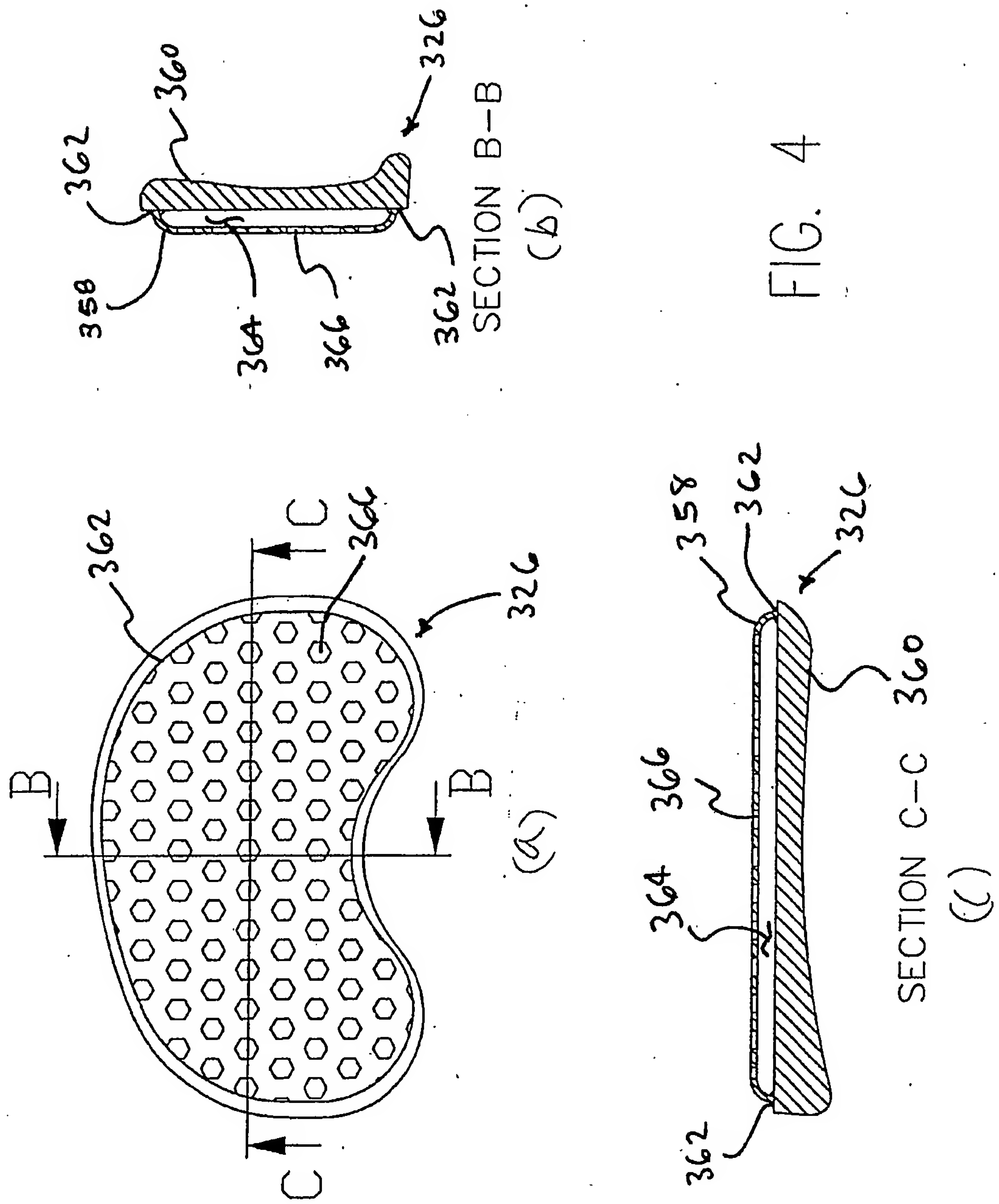

362
360
326
358
364
366
362
SECTION B-B
(b)
B
B
C
C
362
366
326
(a)
358
362
326
360
366
364
362
SECTION C-C
(c)

FIG. 4

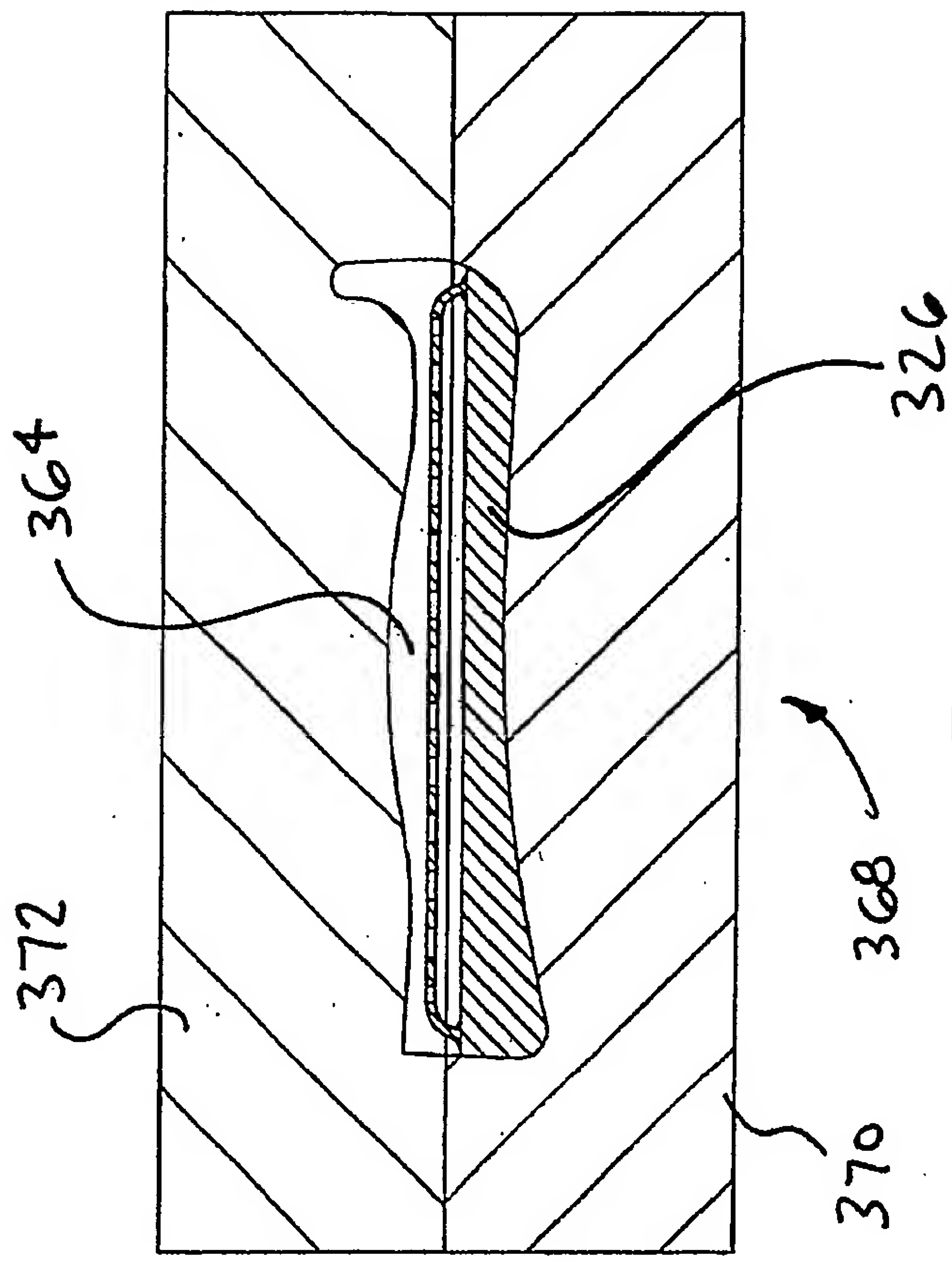


FIG. 5

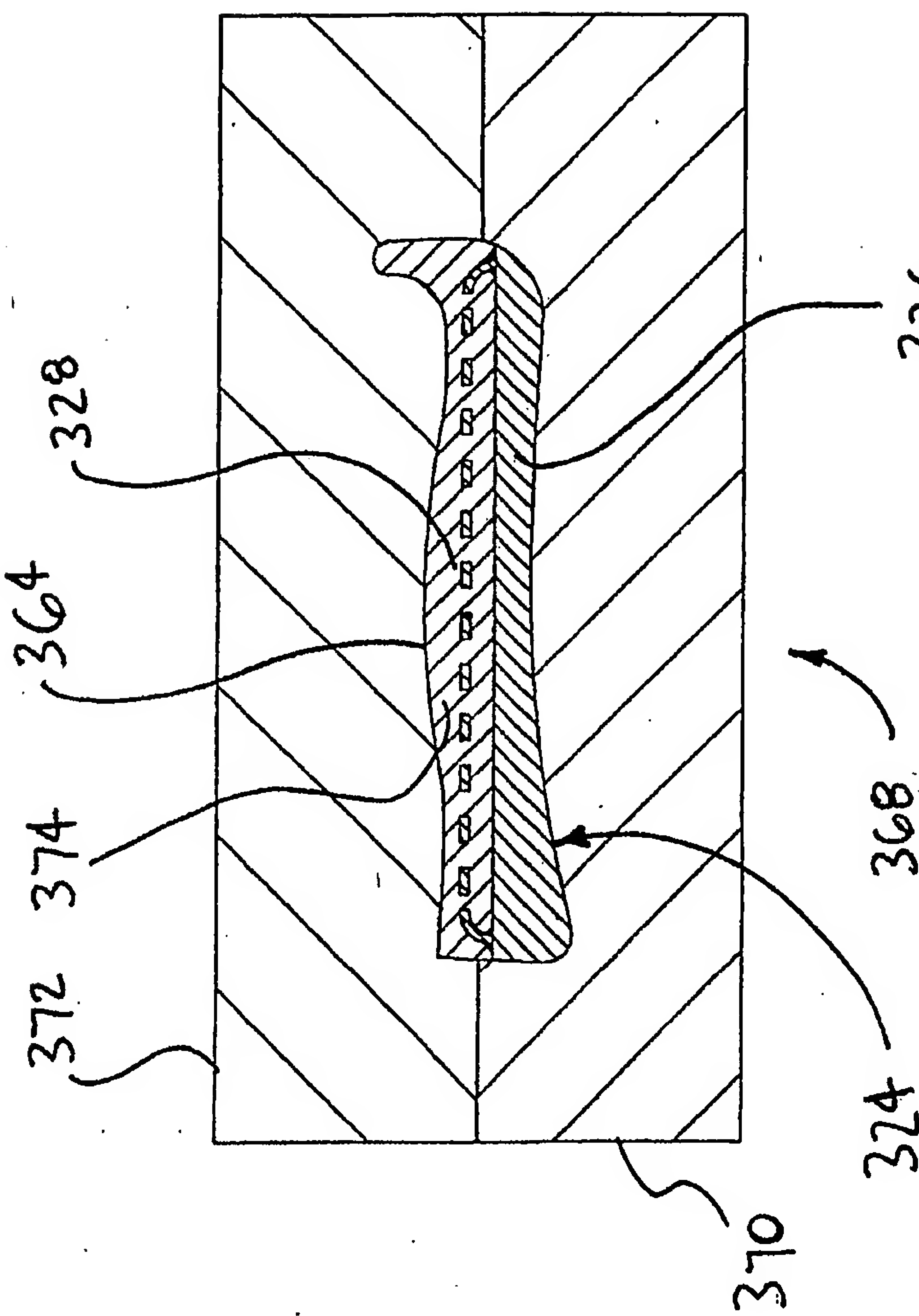


FIG. 6

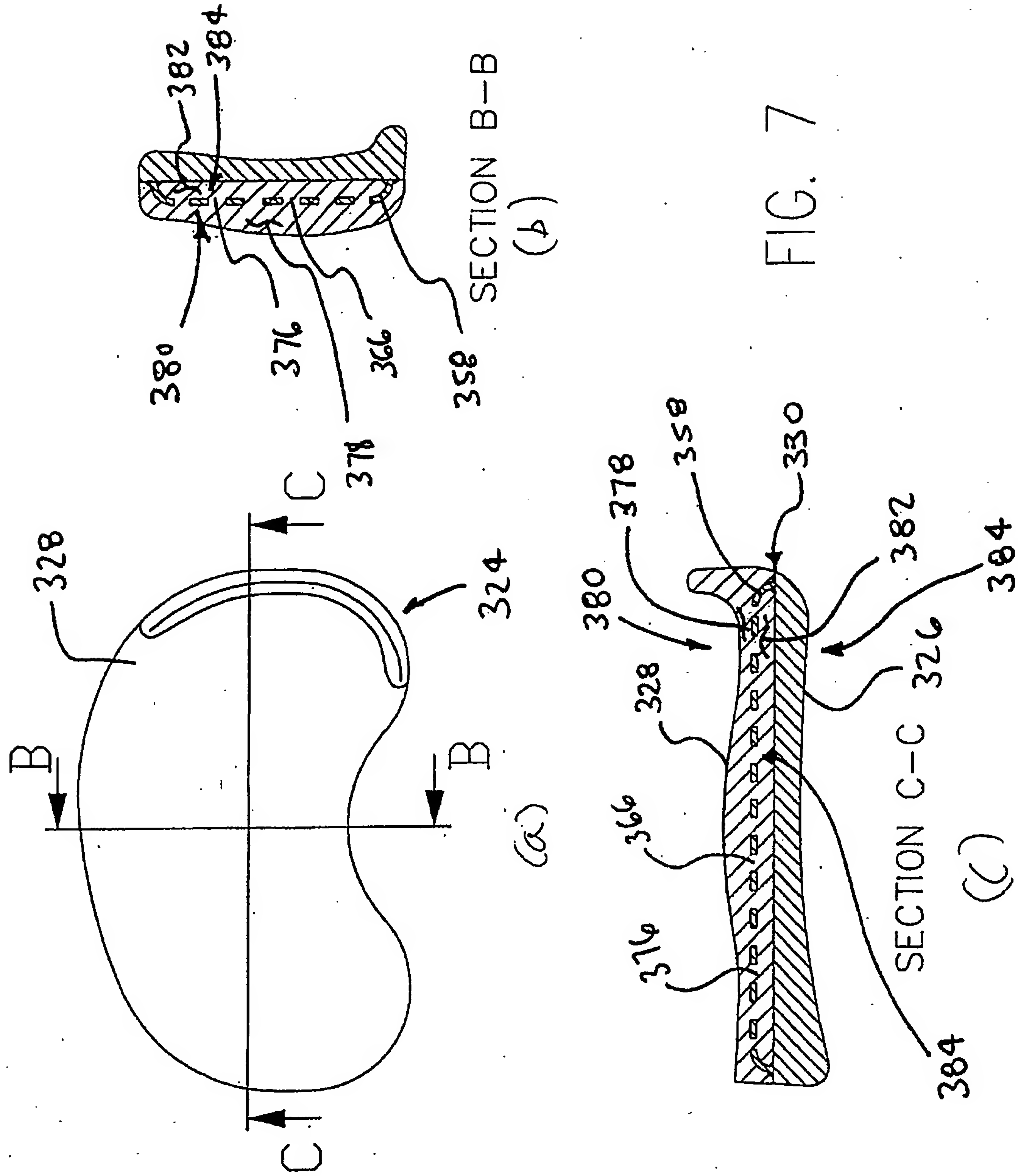

328
324
B
B
C
C
(a)
382
384
380
376
366
358
378
SECTION B—B
(b)
330
358
378
380
382
384
326
328
366
376
384
SECTION C—C
(c)

FIG. 7

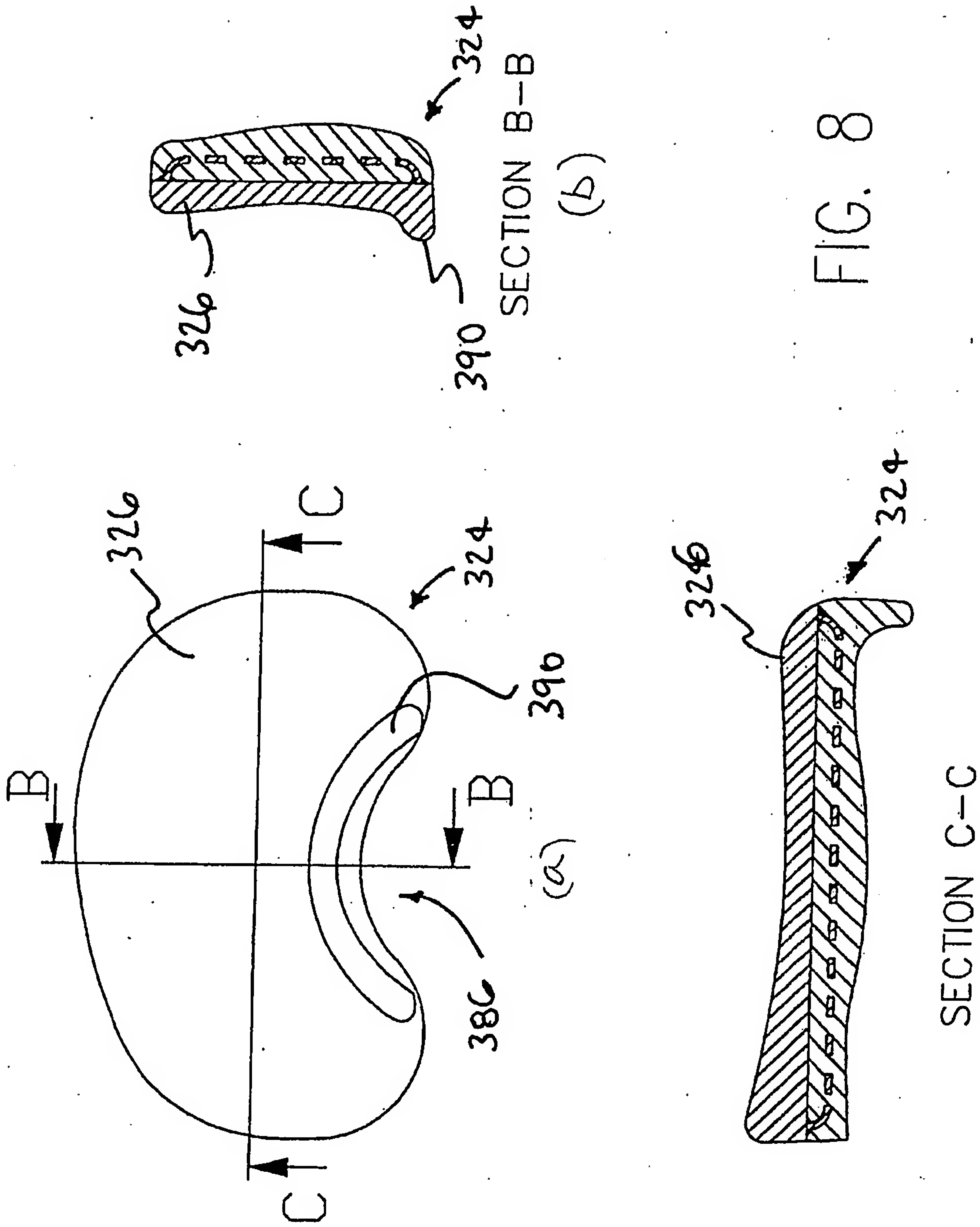

324
326
390
SECTION B-B
(b)
326
C
324
390
B
B
(a)
386
C
326
324
SECTION C-C
(c)

FIG. 8

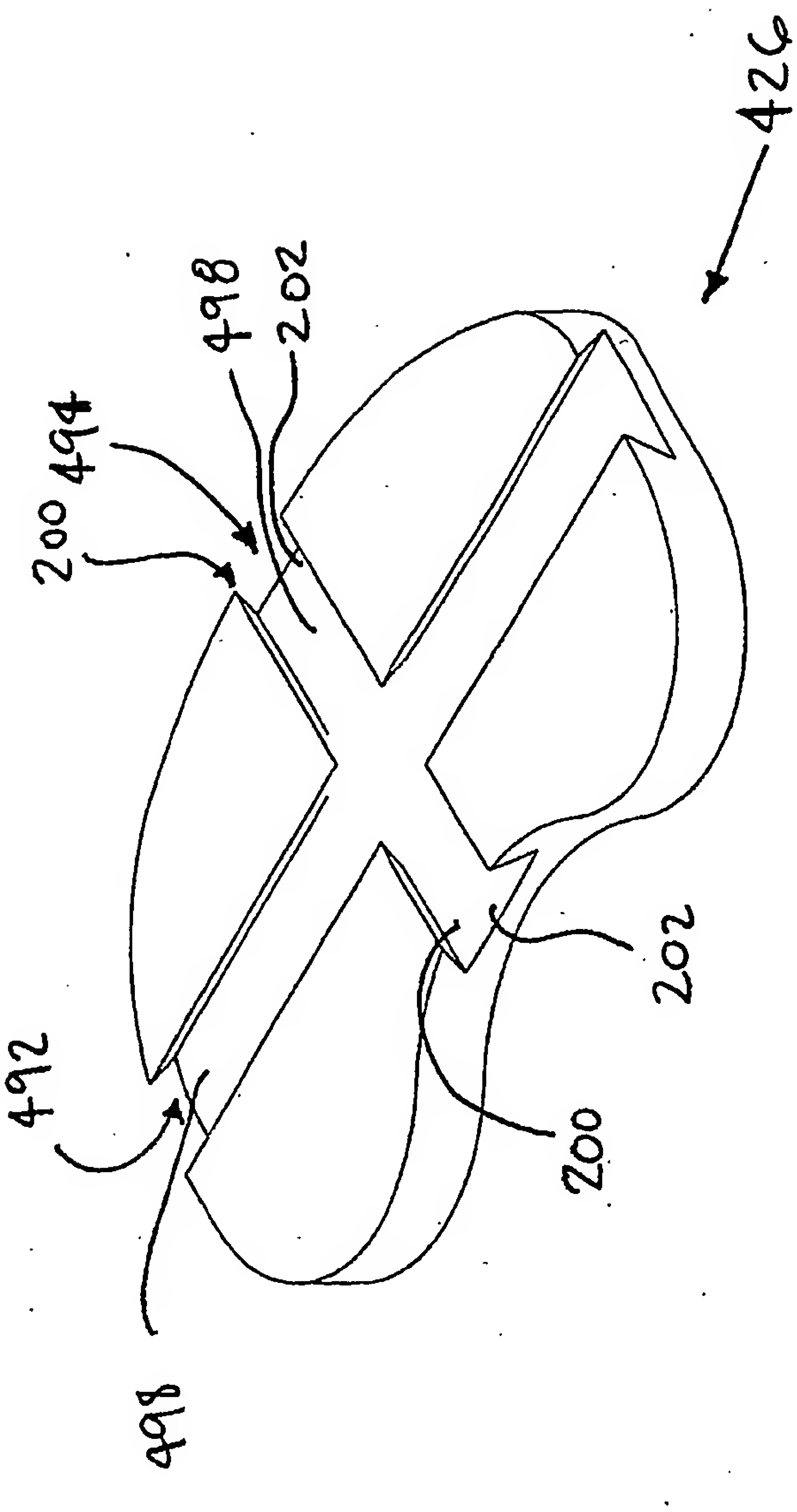


FIG. 9

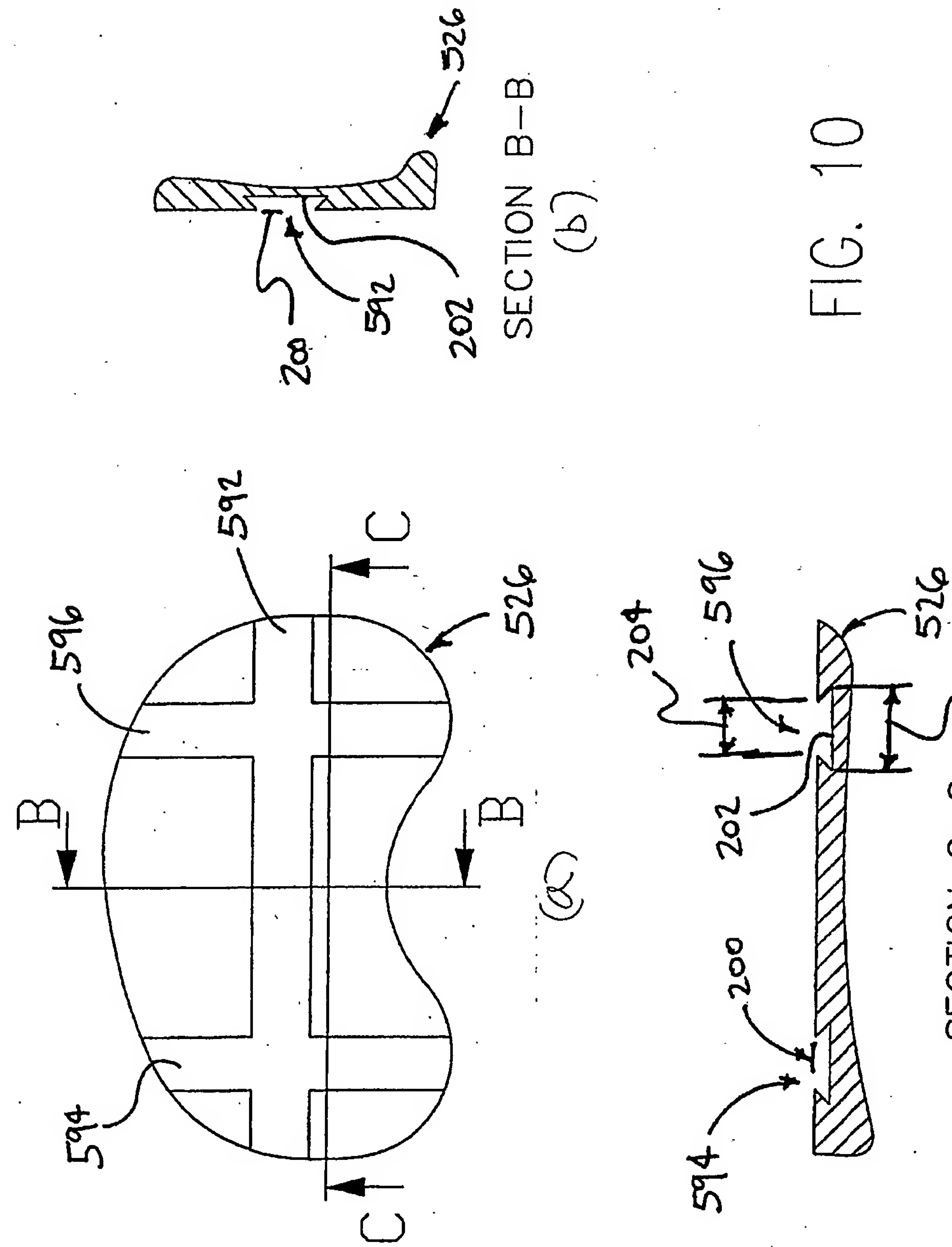

526
200
592
202
SECTION B-B
(b)
592
C
596
526
B
B
(a)
594
C
204
596
526
206
202
SECTION C-C
(c)
200
594

FIG. 10

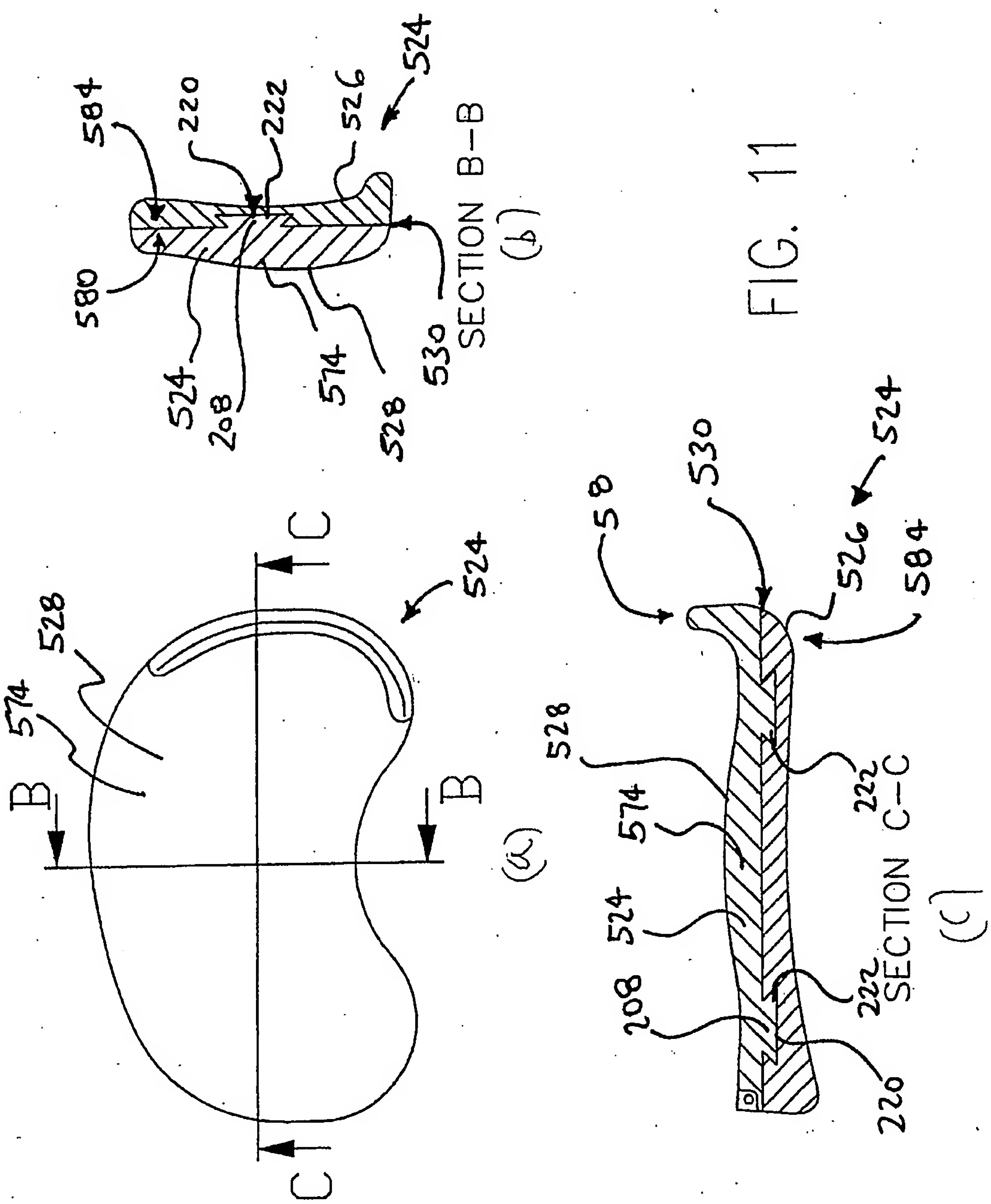

SECTION B-B
(b)
SECTION C-C
(c)
(a)
B
B
C
C
584
220
222
526
524
580
524
208
574
528
530
528
574
58
530
526
584
222
524
208
222
220

FIG. 11

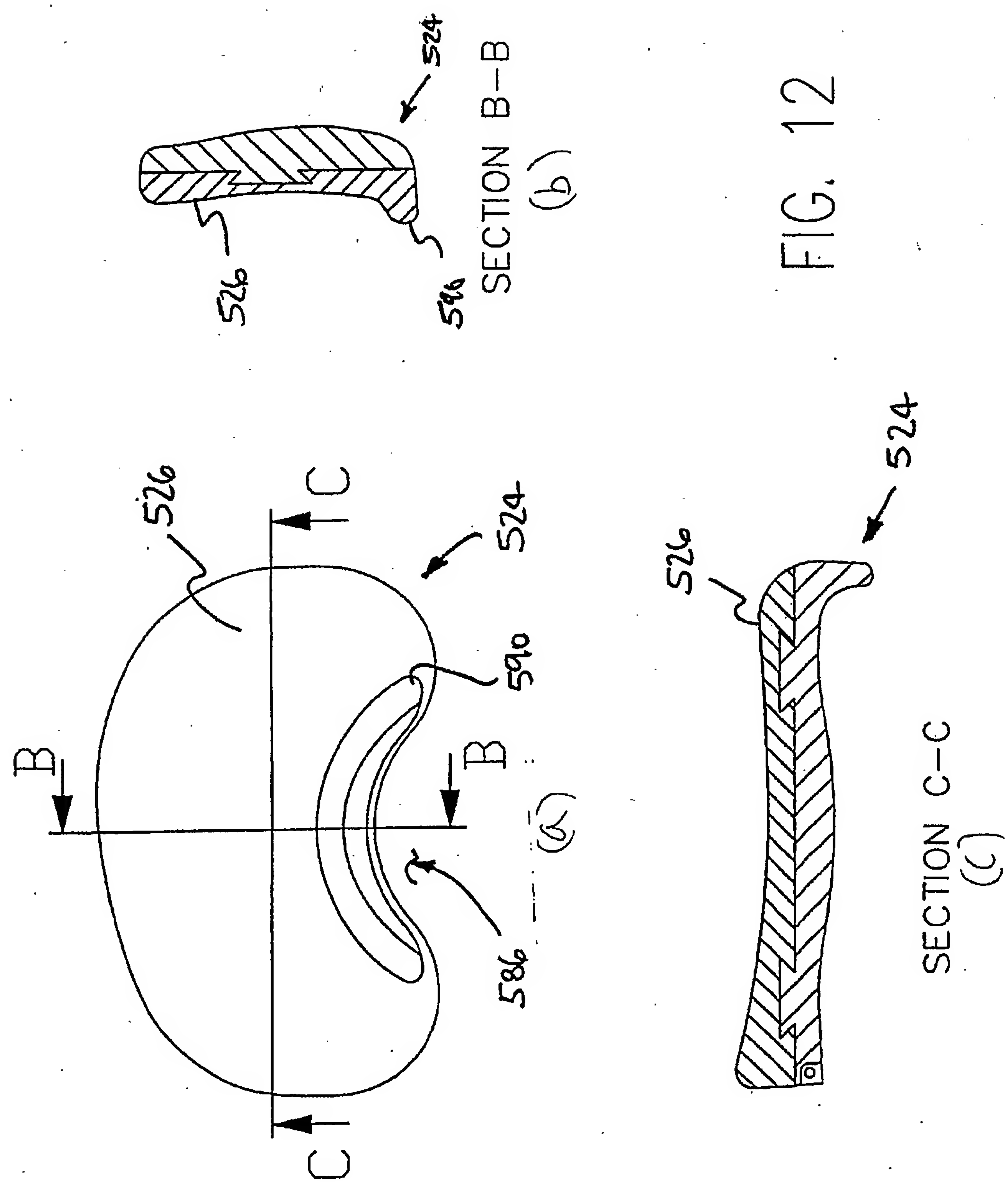

B
B
C
C
526
524
590
586
(a)
524
526
596
SECTION B–B
(b)
524
526
SECTION C–C
(c)

FIG. 12

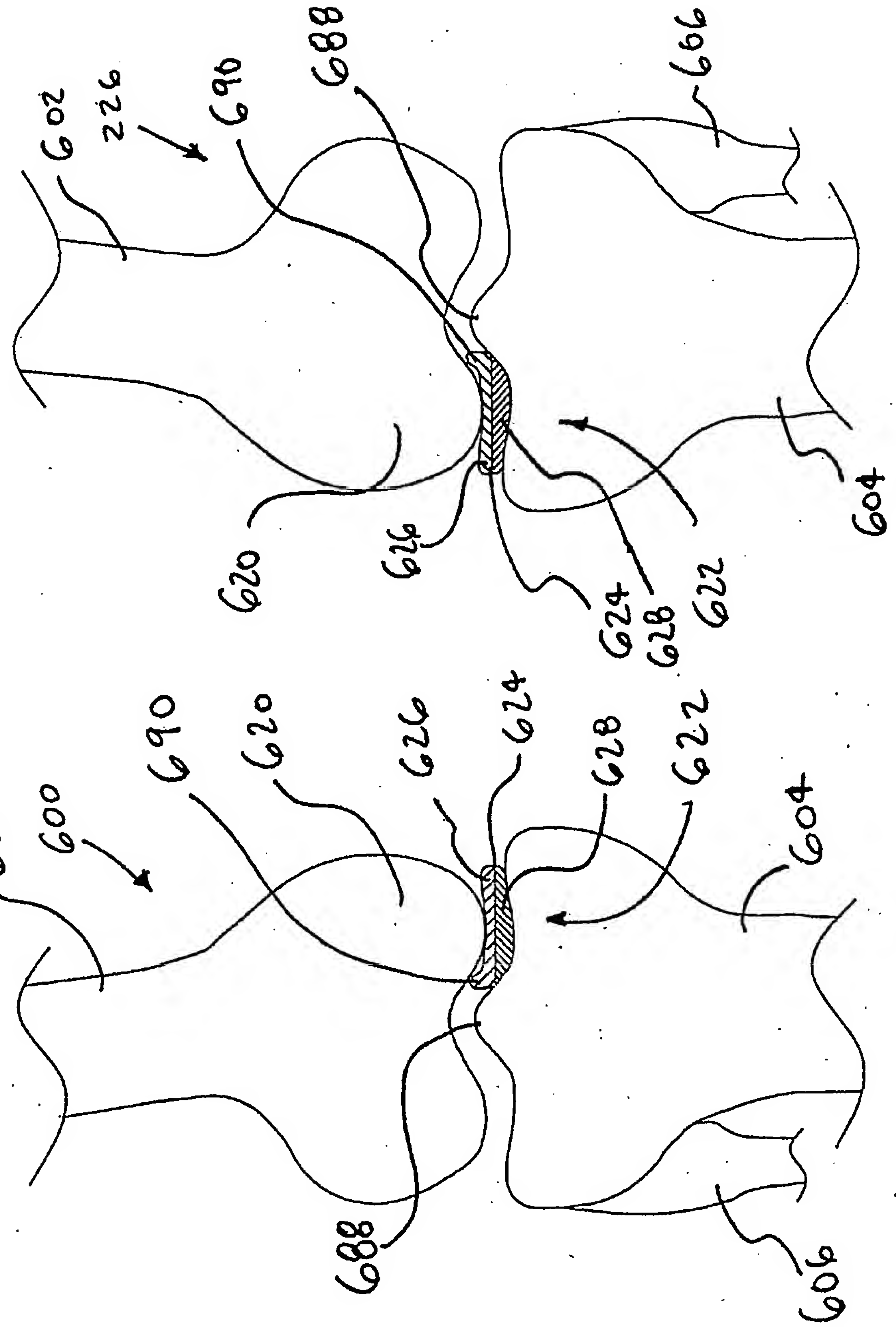

602
226
690
688
606
620
626
624
628
622
604
602
600
690
620
626
624
628
622
604
688
606

FIG. 13

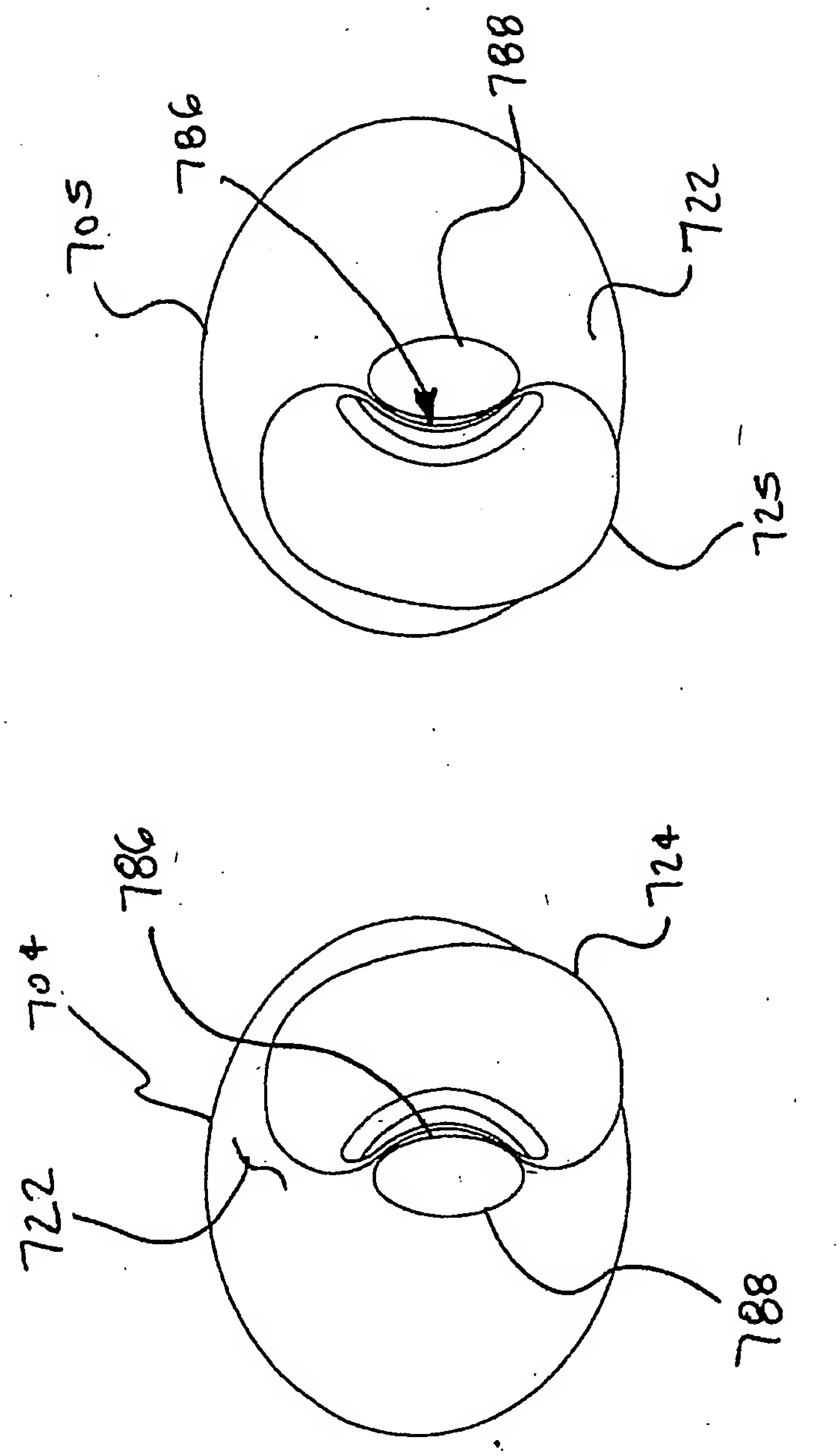
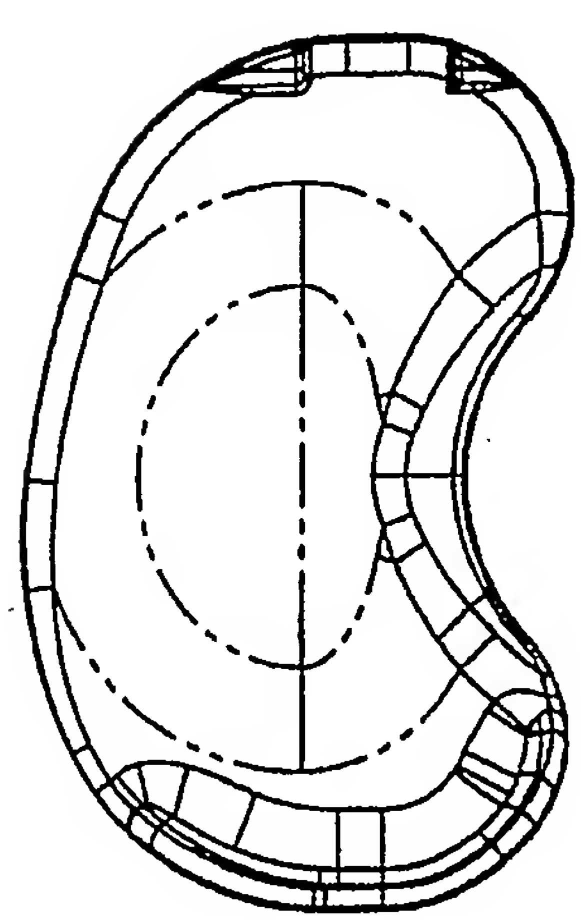
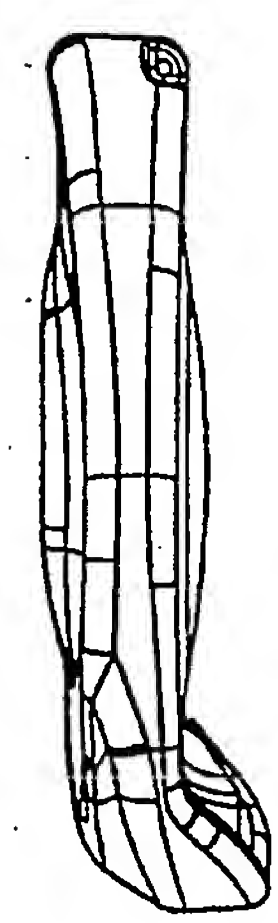


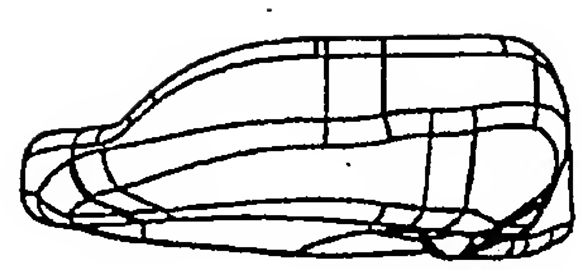
FIG. 14



15(A)

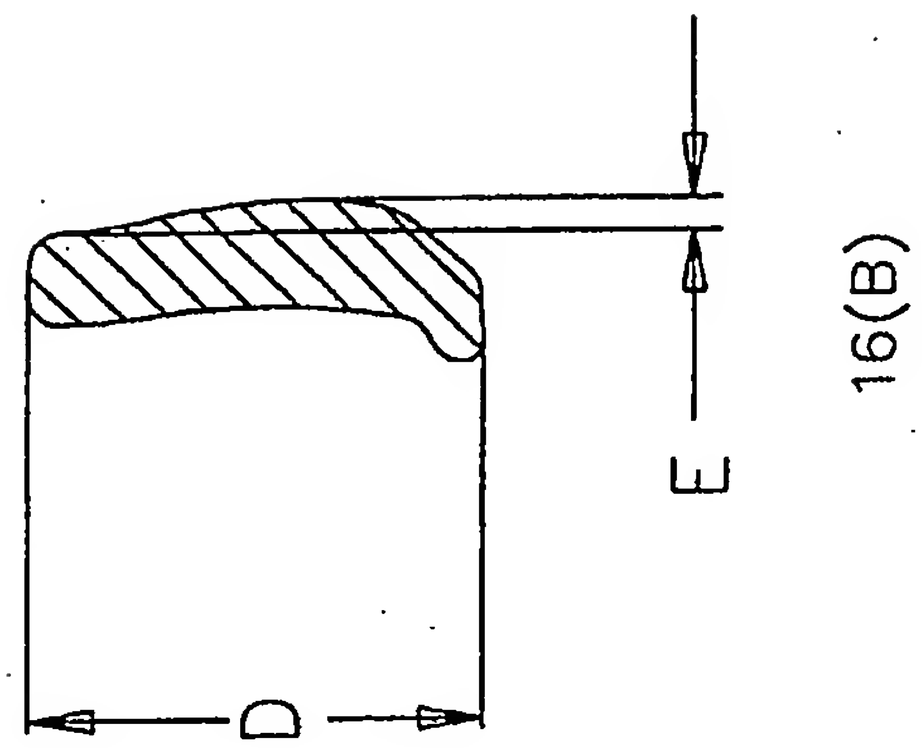


15(C)



15(B)

FIG. 15



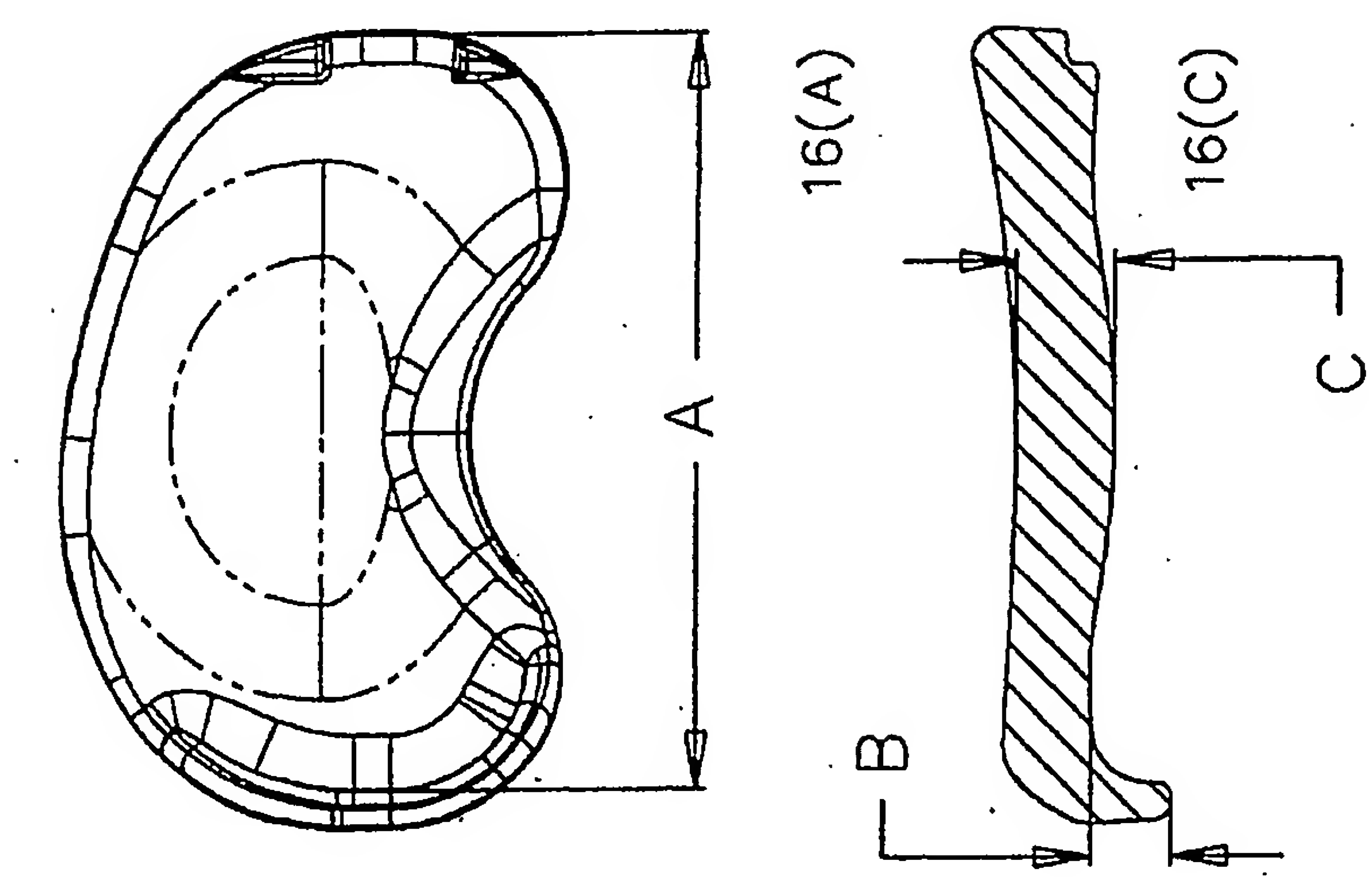


FIG. 16

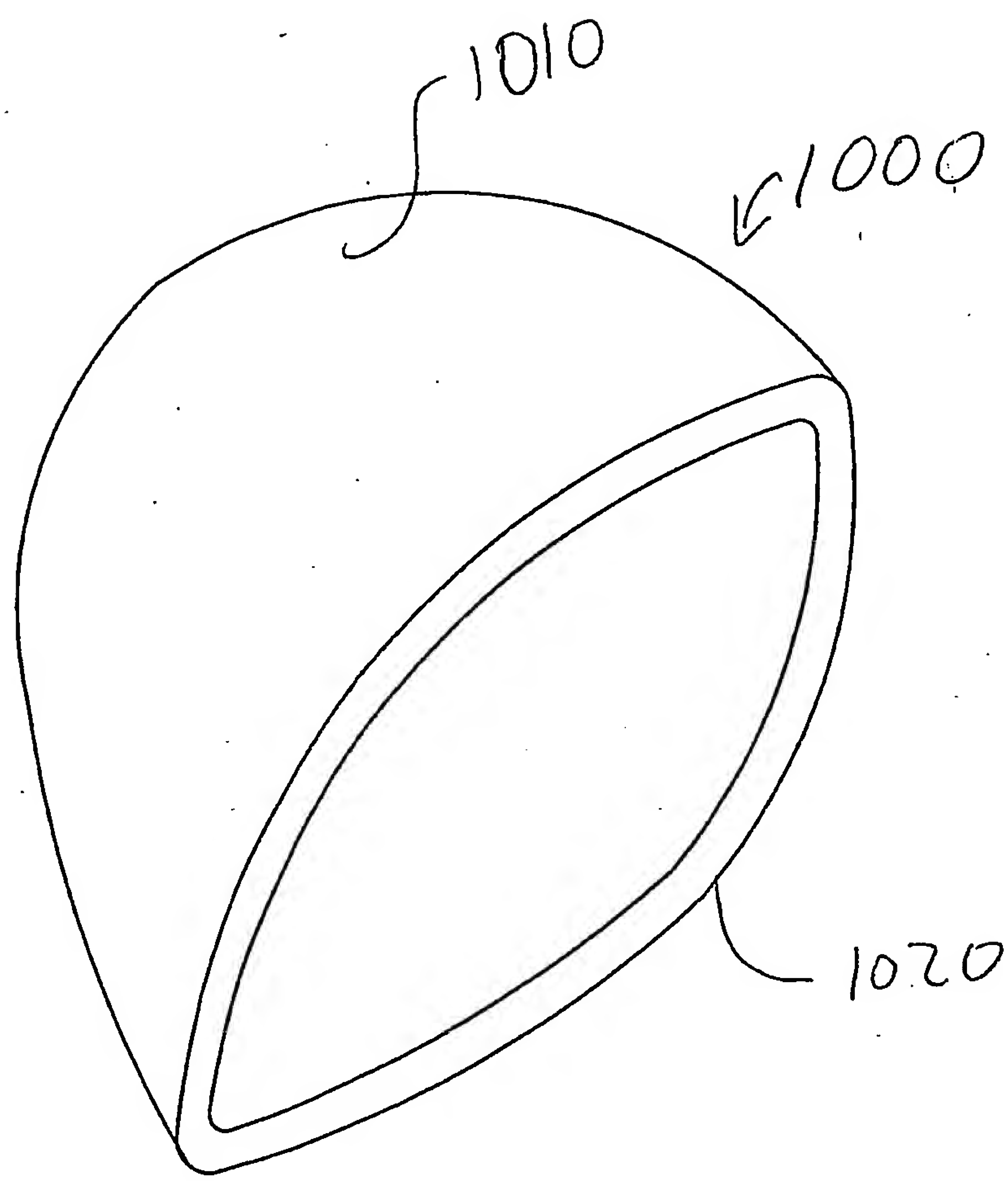


Fig. 17

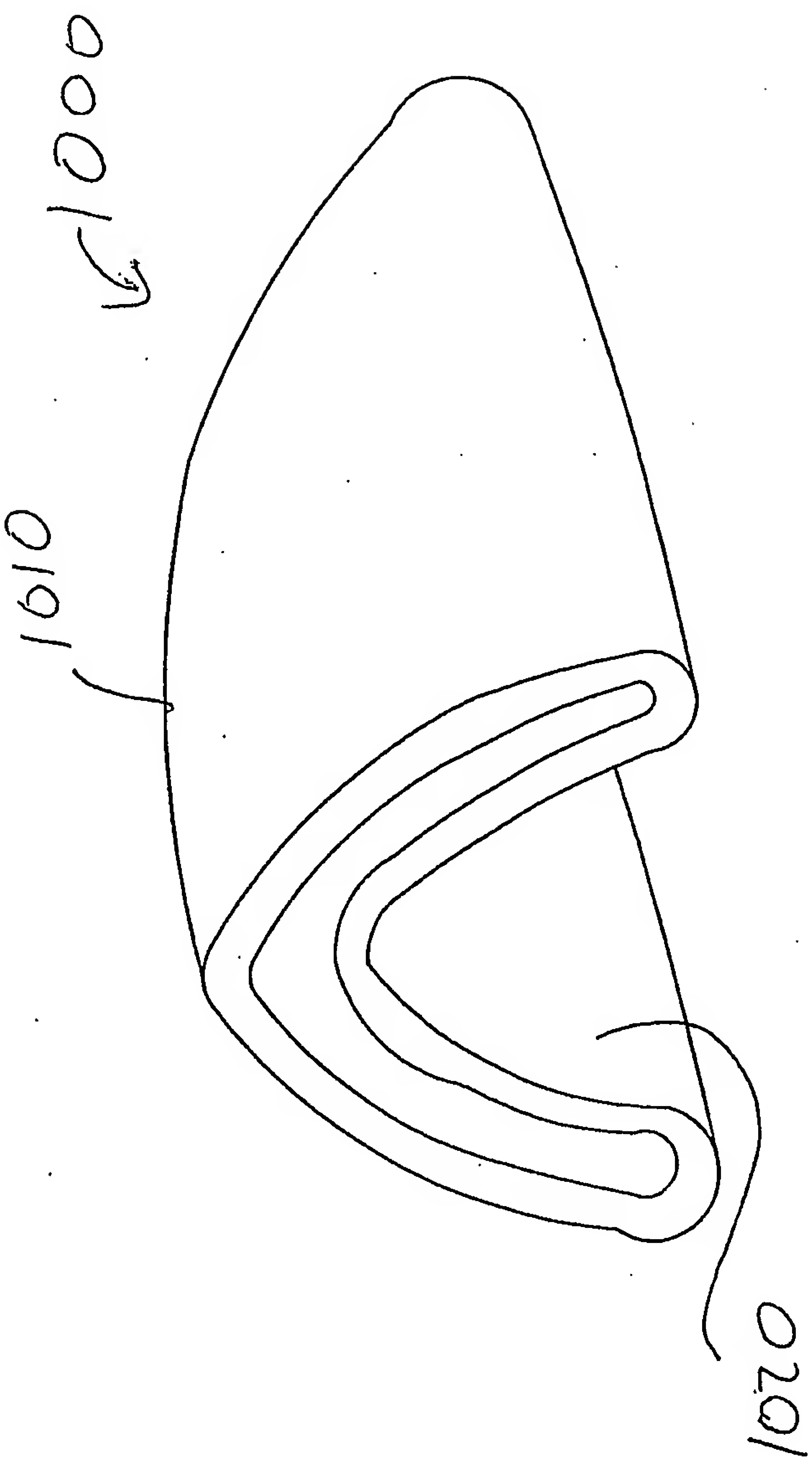


Fig. 18

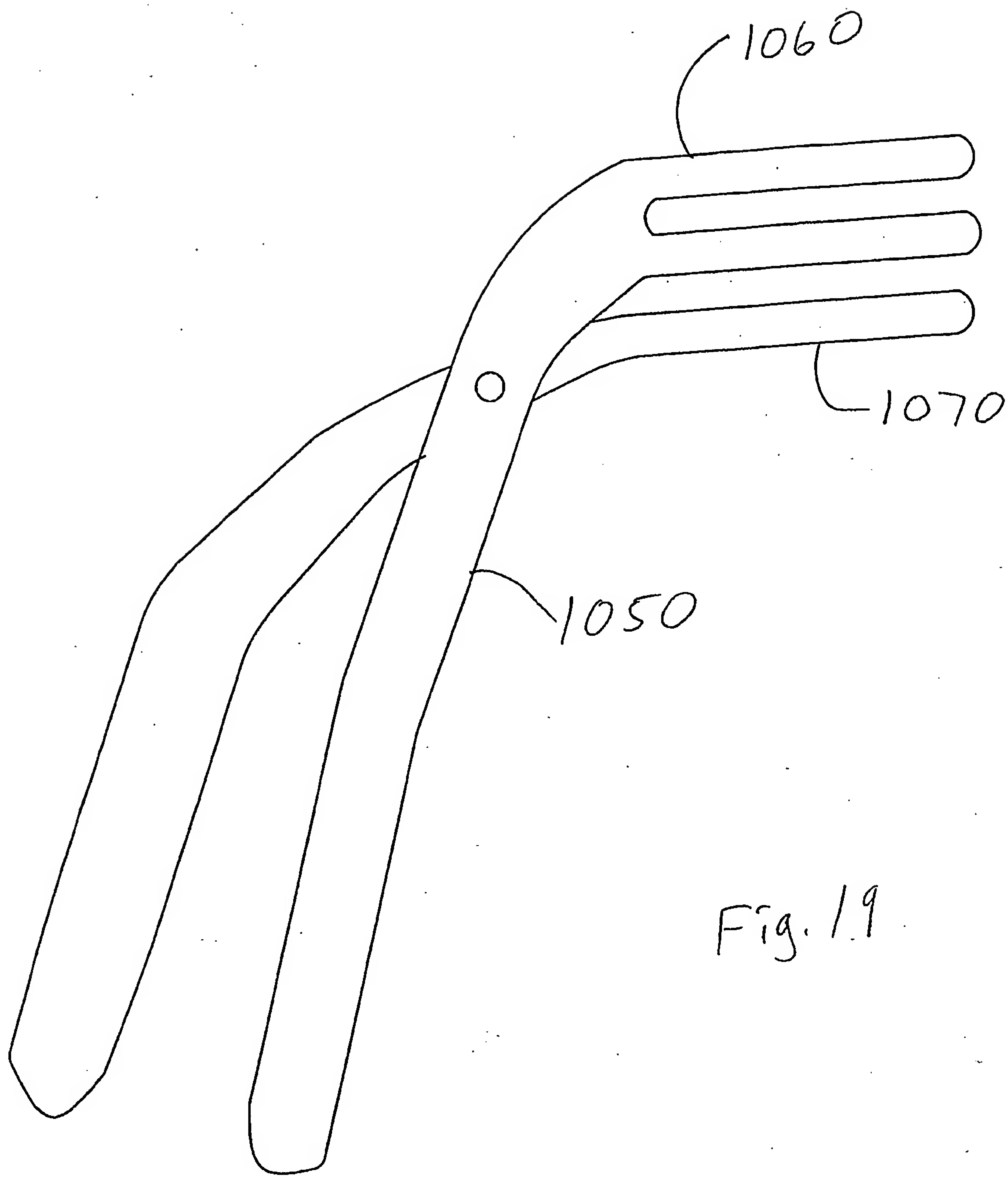


Fig. 19

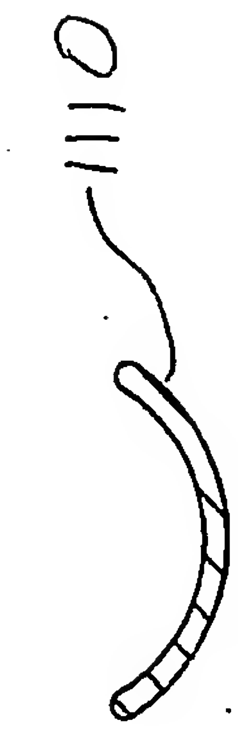


Fig. 20C

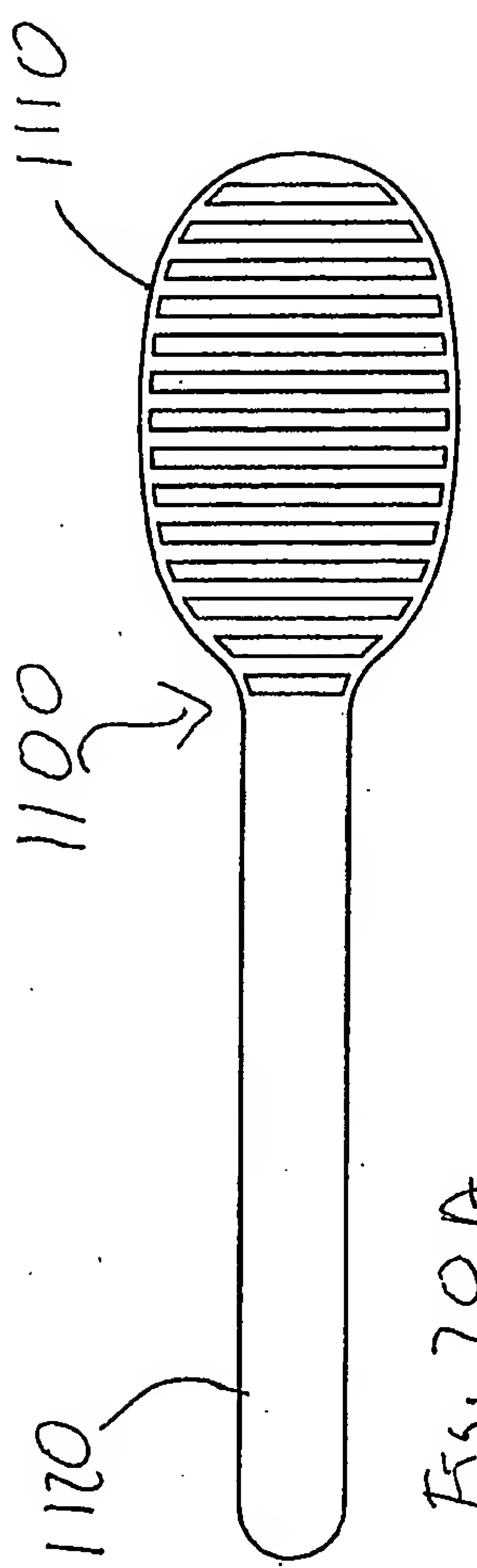


Fig. 20A

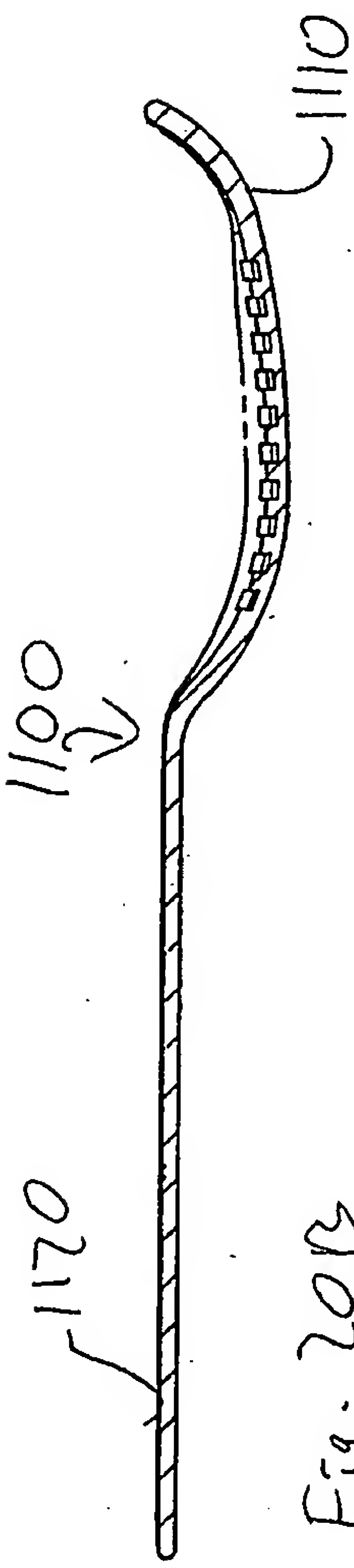


Fig. 20B

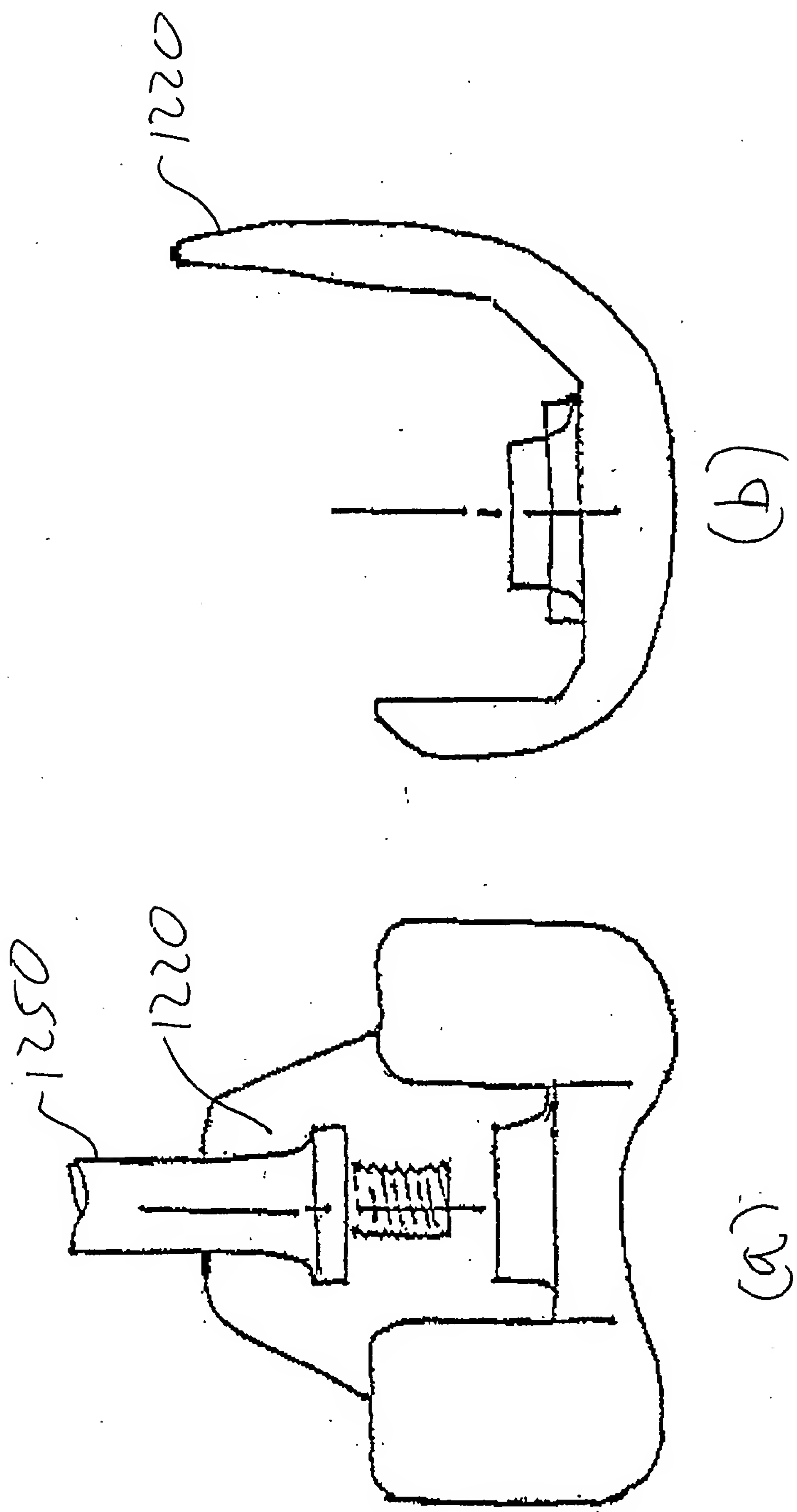


Fig. 21

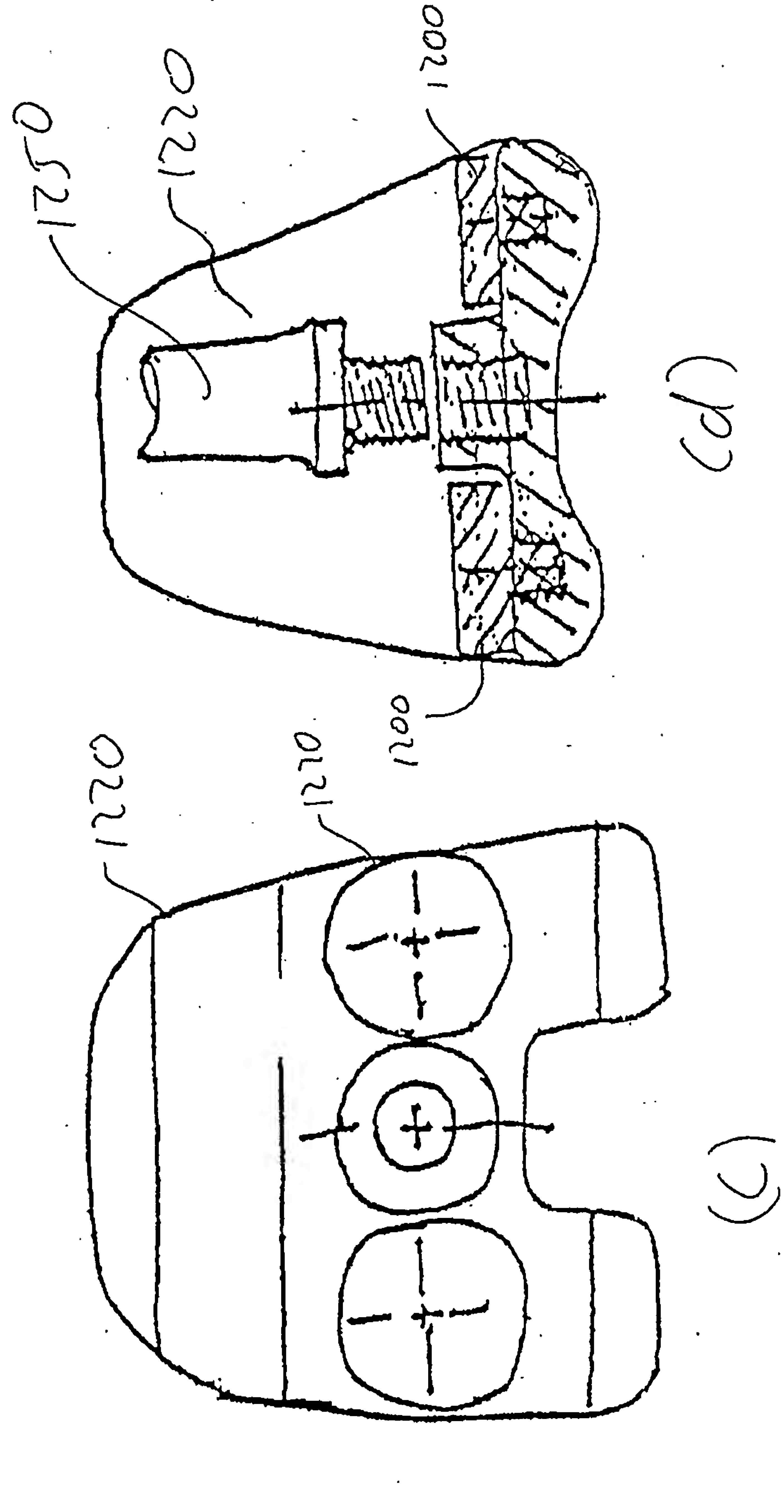


Fig. 21

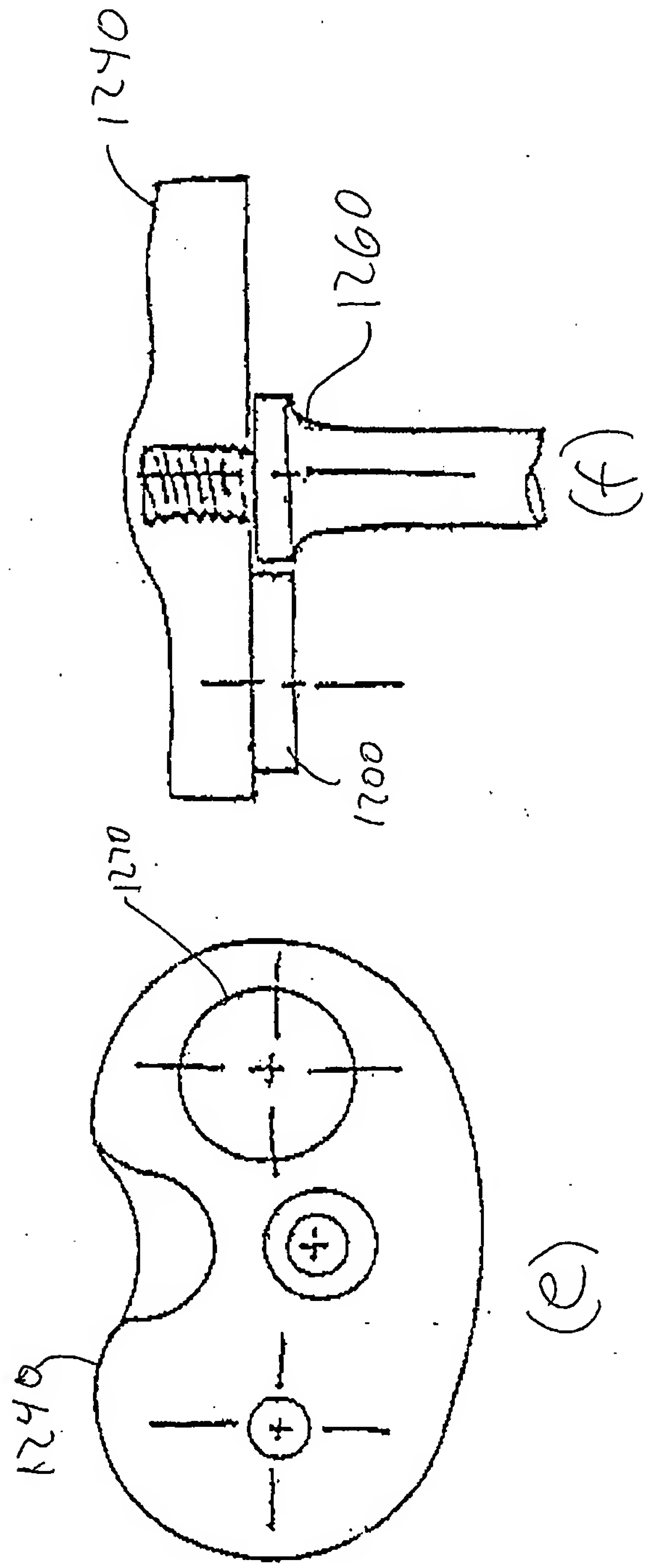
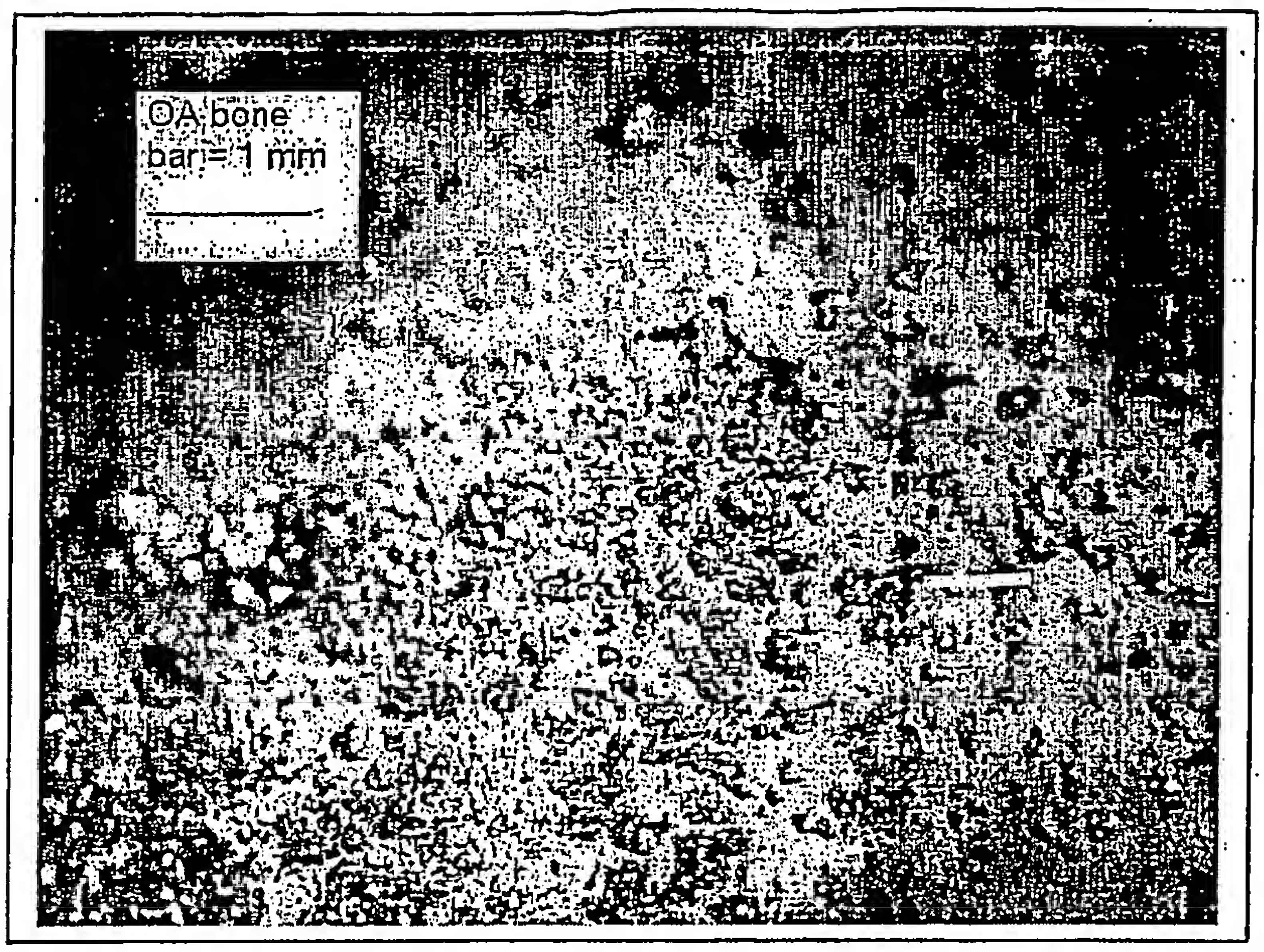
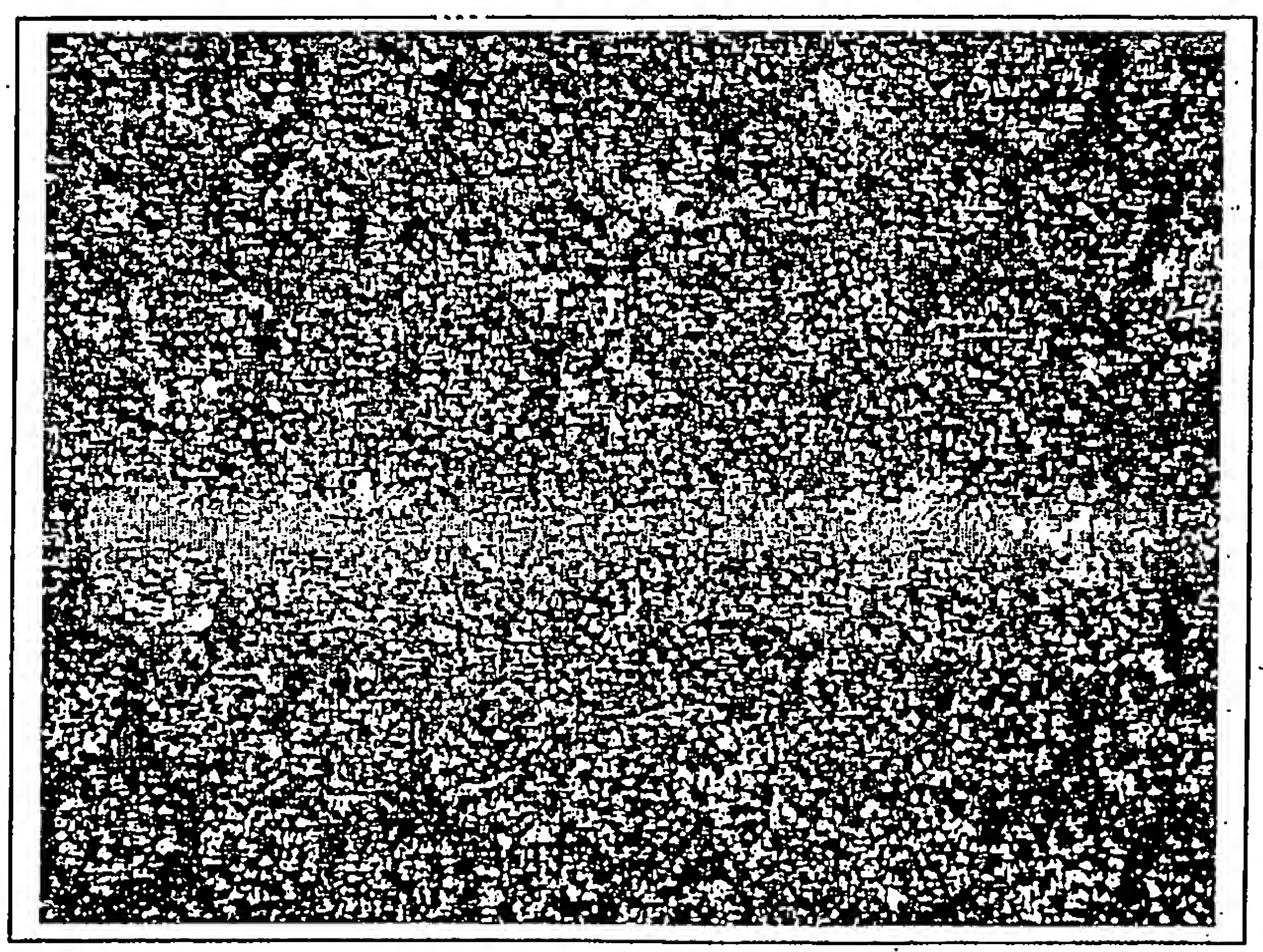


Fig. 21



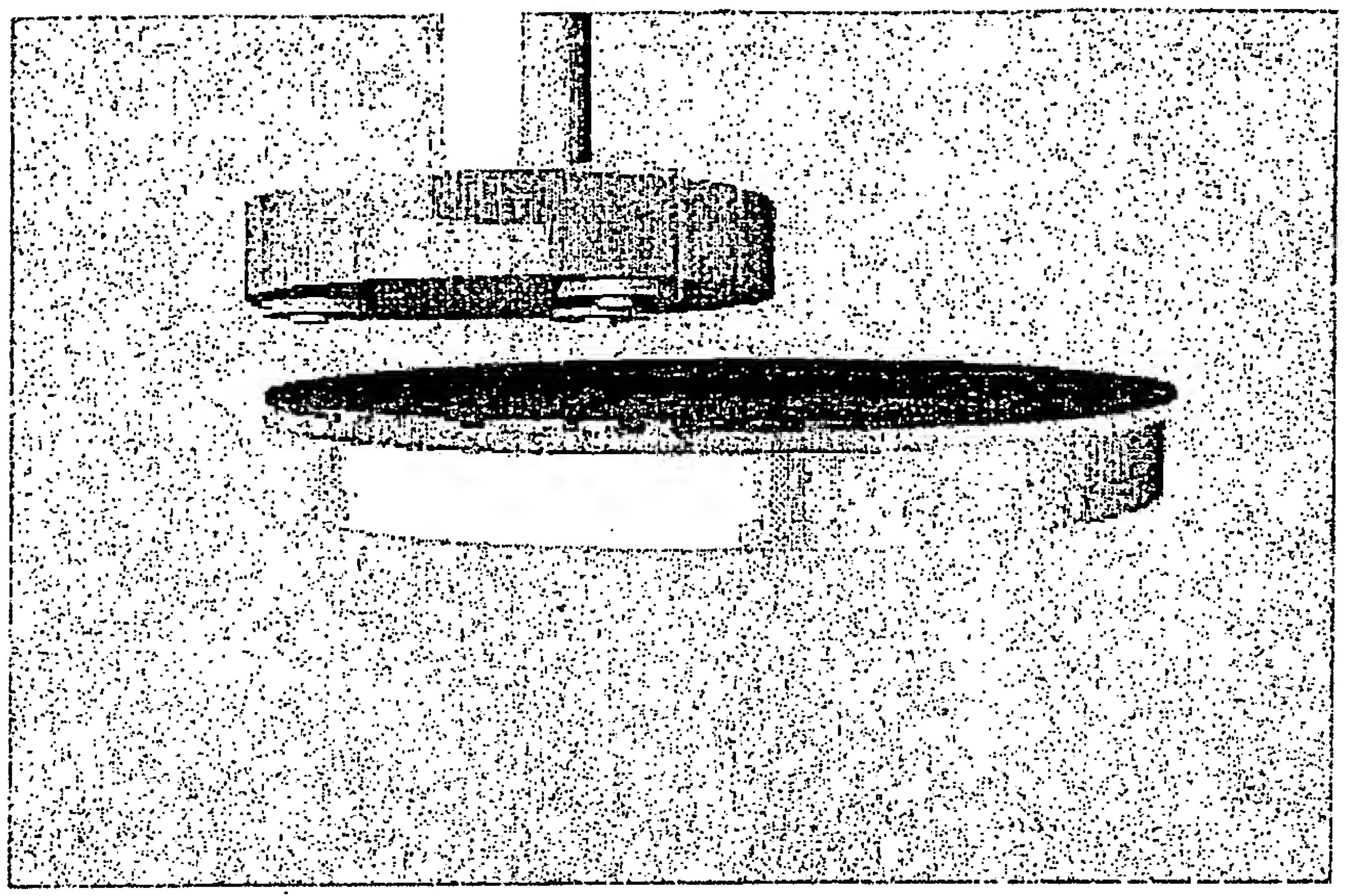
Optical micrographs comparing a typical surface of the eburnated bone

Fig. 22



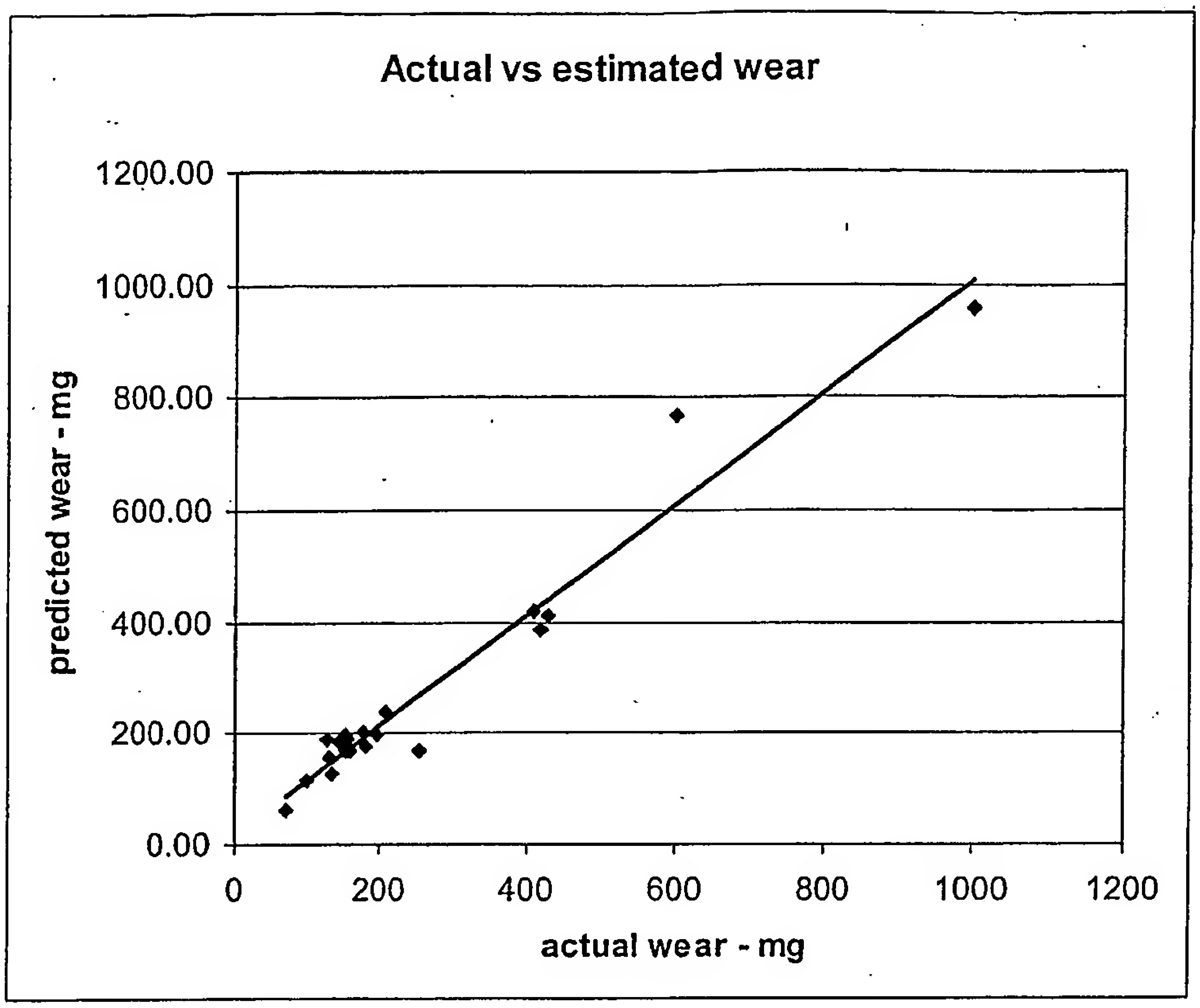
Abrasive surface used during Buehler testing . The islands of 70 micron diamond are 1 mm dia. (bar). Many of the pores on bone approach 1 mm but the average size is close to 0.2 mm

Fig. 23



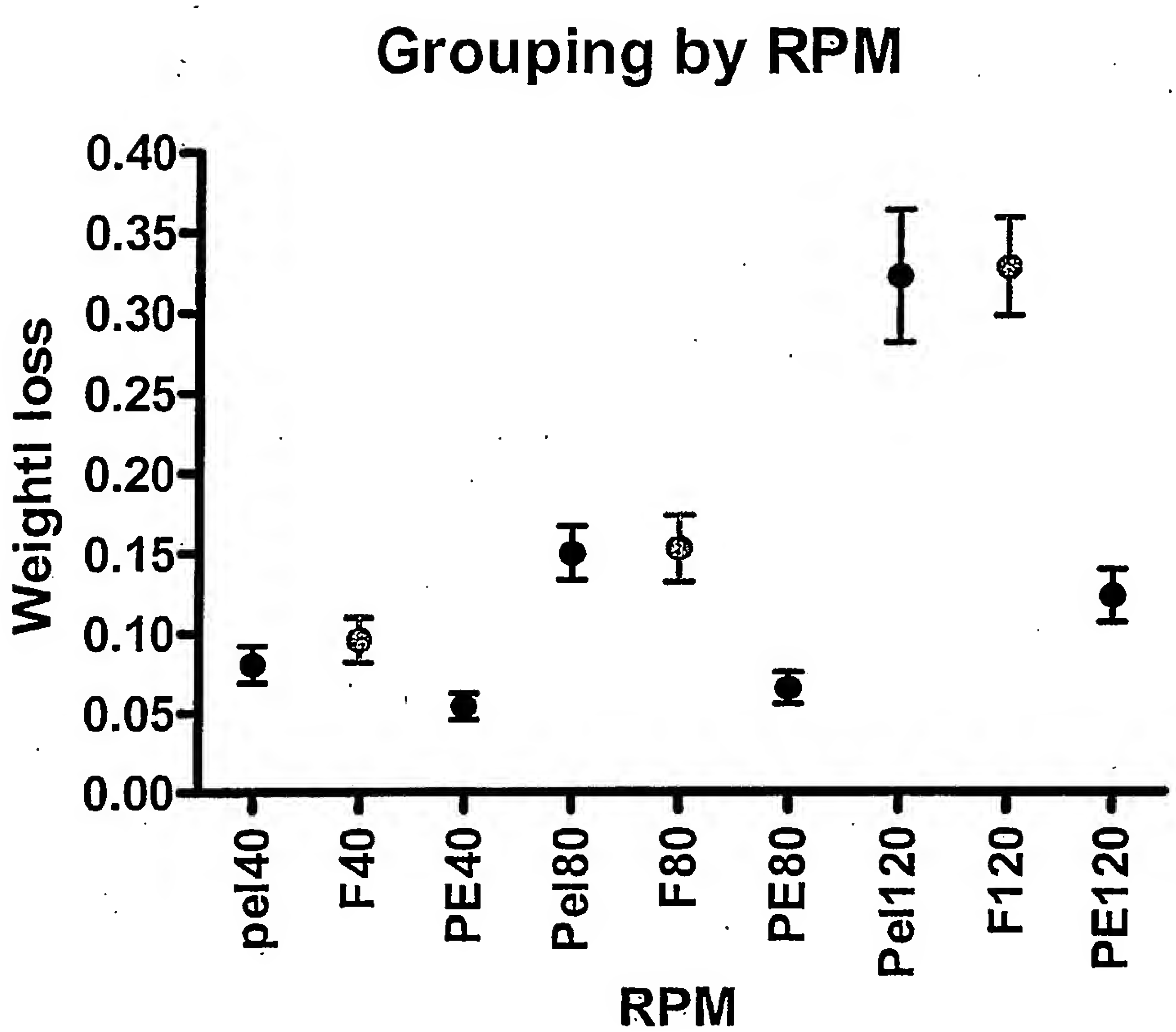
Schematic of the Buehler test apparatus. Three specimens are held in the sample holder inserted in polyurethane cups. The diamond abrasive sheet is comprised of a polymer backing with an adhesive.

Fig. 24



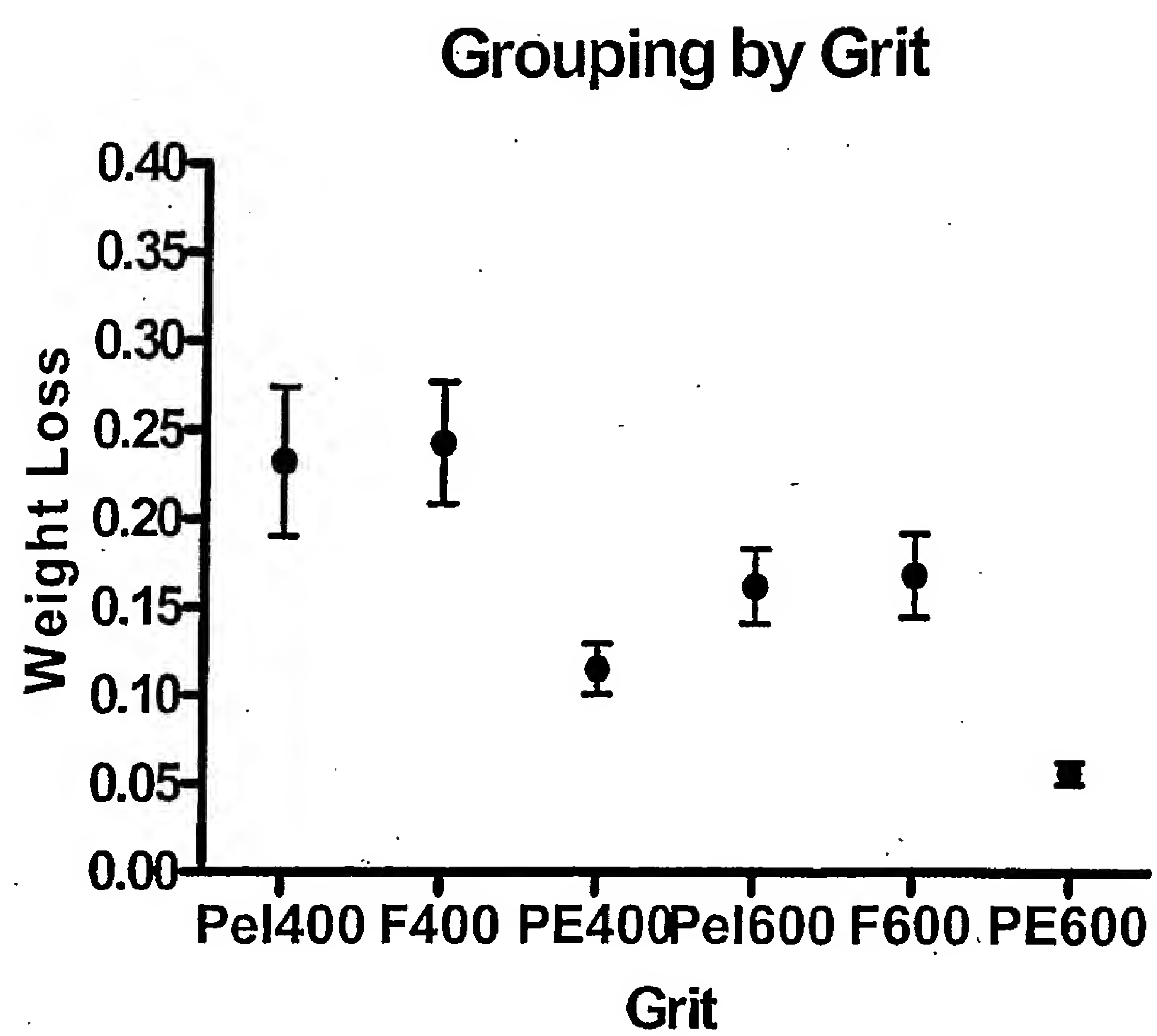
Plot of predicted wear vs actual wear from the Buehler test method. Wear testing of UHMWPE on the KMM using the implant model produces a wear of approximately 64 mg for 300,000 cycles. The parameters for the Buehler were adjusted so that this value was obtained in 20 min of testing. The complete test was 60 min in duration. Slope:0.9891 ± 0.05215, Goodness of Fit: r^2=0.9523

Fig. 25



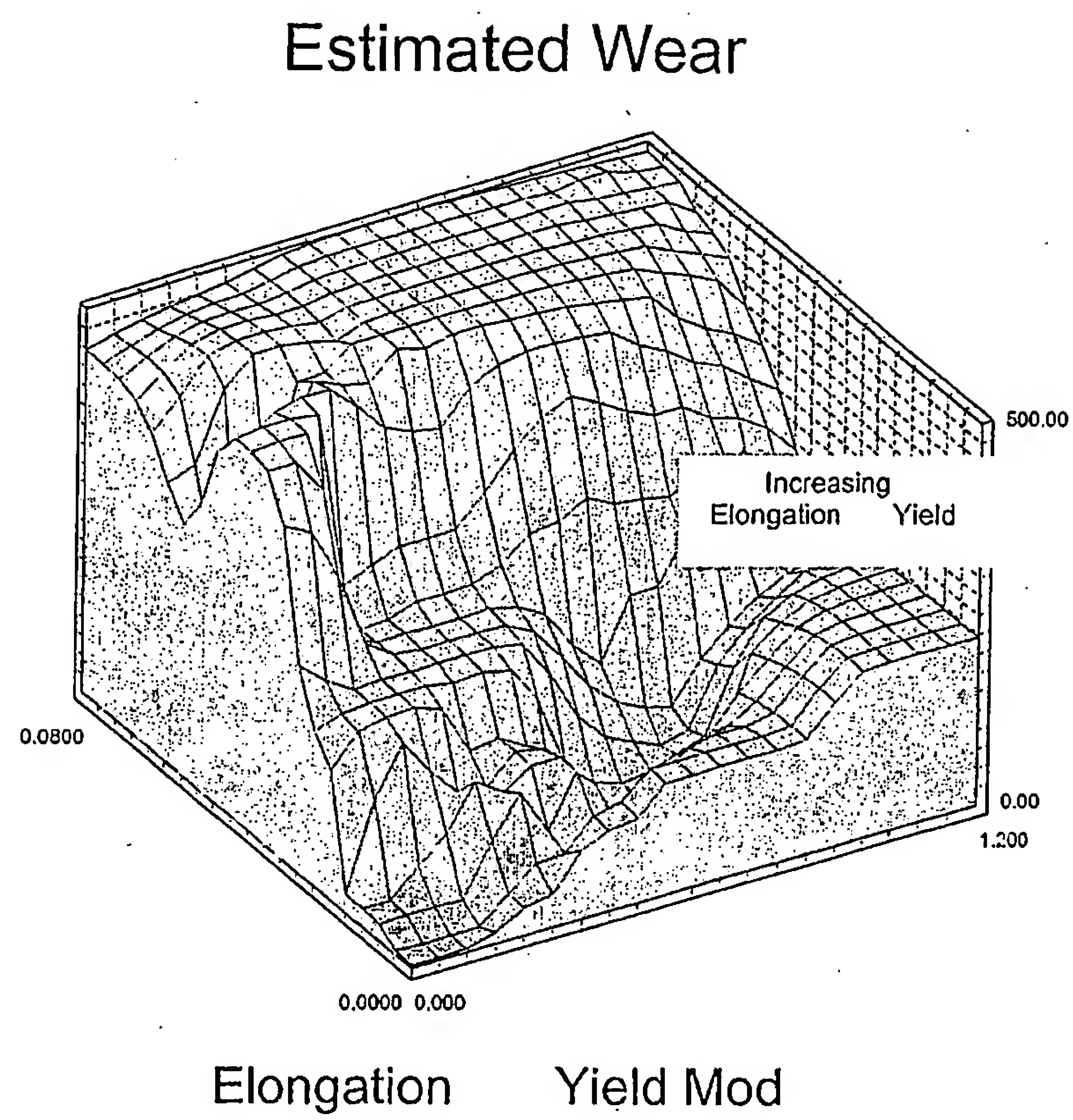
Wear rate as function of rotational speed of the platen, and left as function of abrasiveness.(left 600 grit SC paper.) PE120 = UHMWPE @120 rpm, Pel 80= Pellethane 80A@ 80rpm, etc.

Fig. 2,6



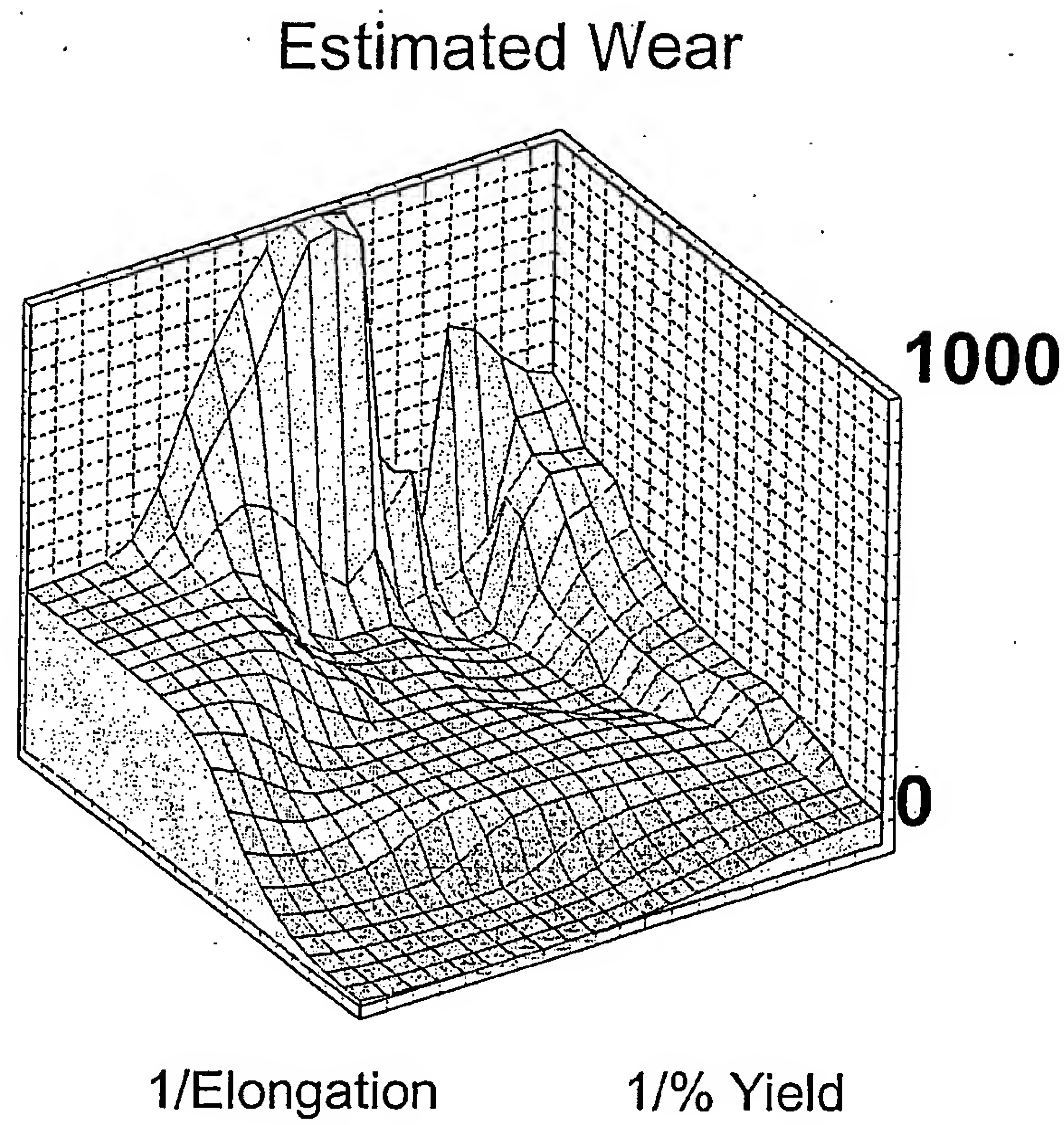
Same materials tested as a function of surface roughness using 400grit and 600 grit silicon carbide paper. For both tests, 20 min, 20 lbs, 80 rpm platen speed, n>12 Wear was proportional to surface roughness; but not to speed when equal distance was accounted for.

Fig. 27



Surface plot of wear as a function of inverse elongation and modulus at yield left using constructed from the data in table 2 (strain at yield value between 2 and 20%.),

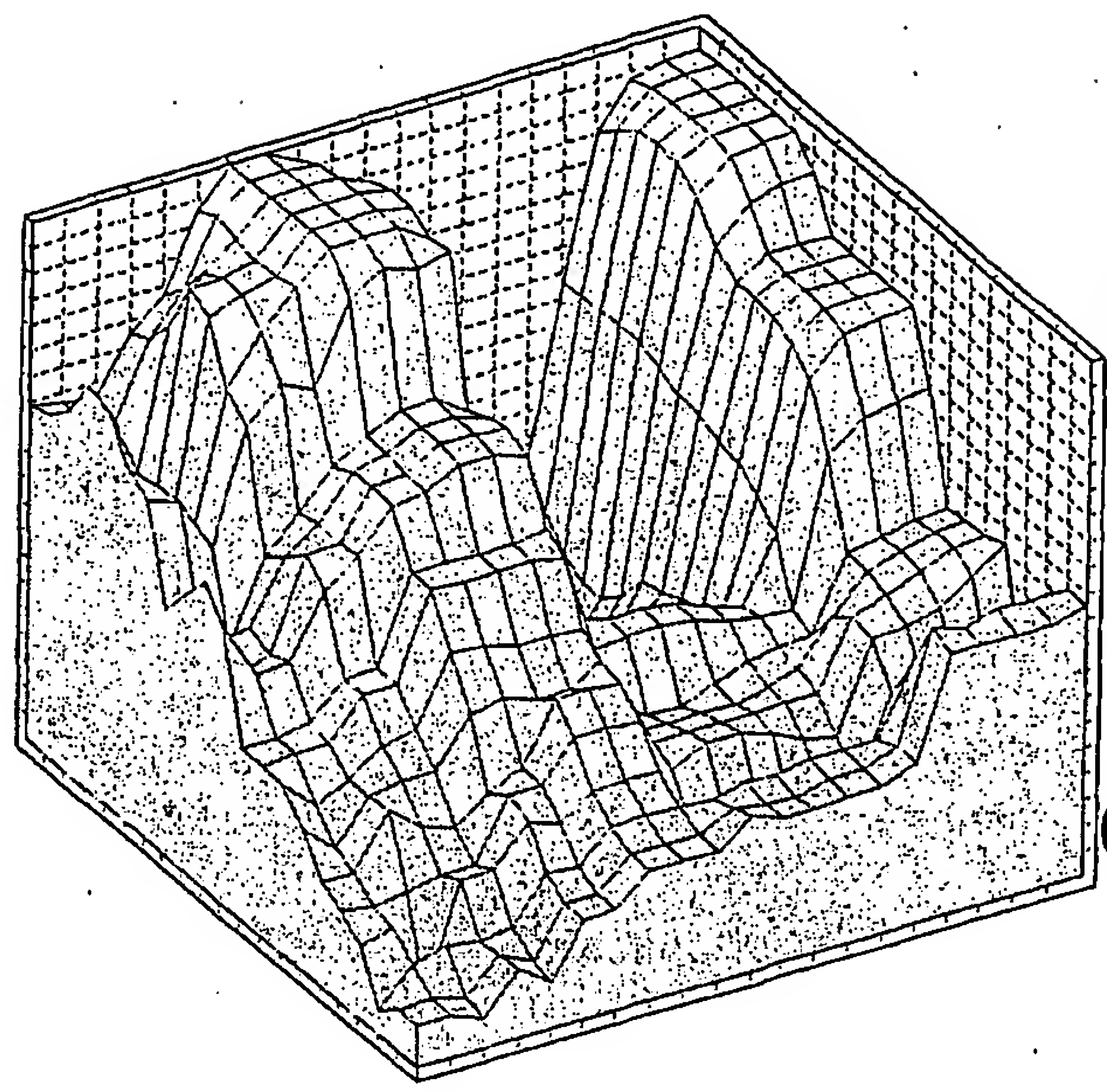
Fig. 28



Wear as a function of inverse elongation and strain at yield (modulus at yield between 100 and 200 MPa.)

Fig. 29

Estimated Wear

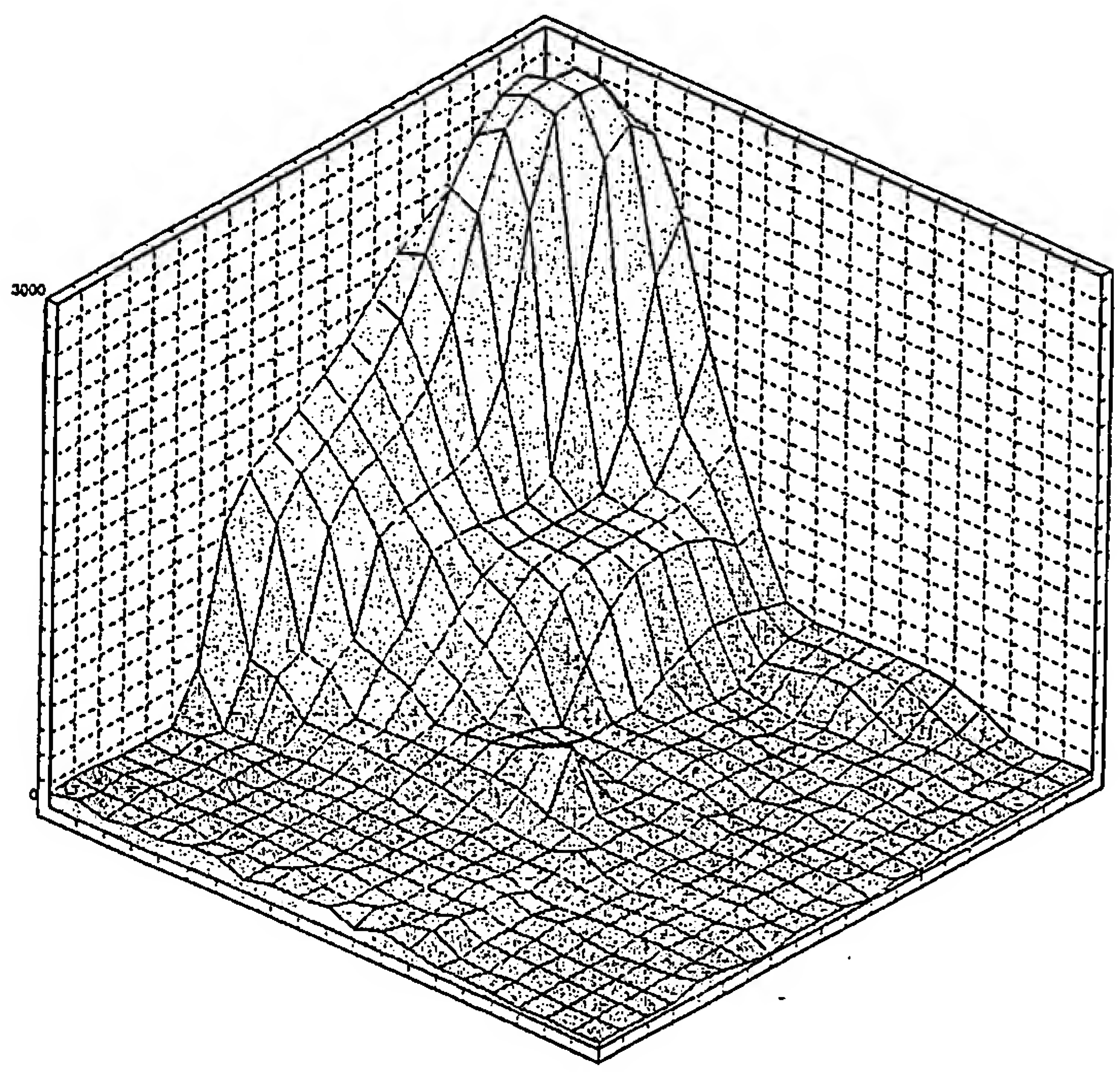


Theoretical wear from 600 data hypothetical data sets(values of y,e,s) for equation 1. Two of the three parameters are use for the plot: inverse elongation and inverse modulus at yield. Strain @ yield between 5 and 10 %, modulus at yield between 100 and 200 MPa and elongation between 100% and 400 percent.

Fig. 30

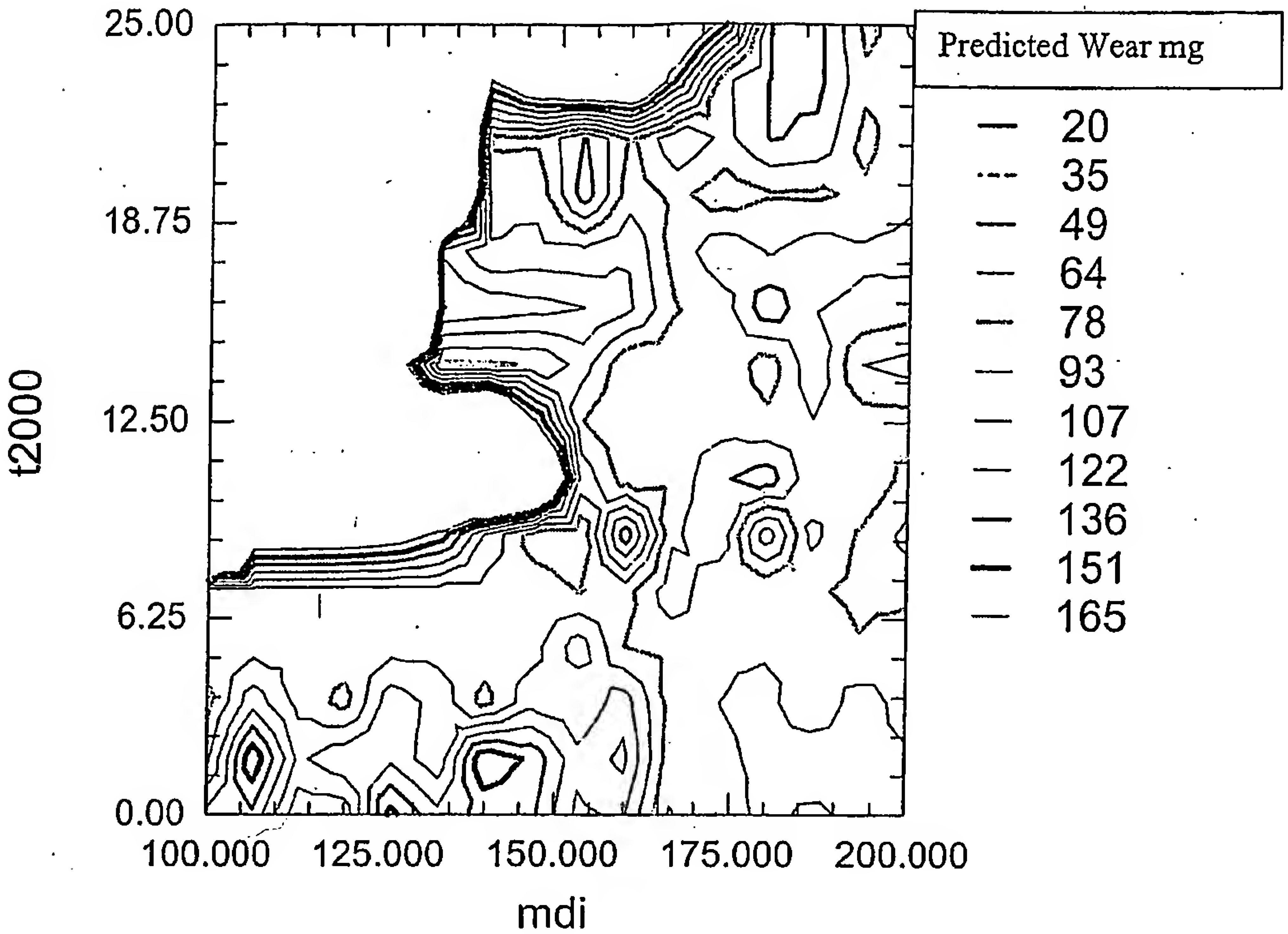
Predicted Wear

MDI



Plot of predicted wear as a function of MDI composition and T2000. The effects of T1000 are similar while plots of wear and variations of BDO or ratios are less informative since the ratios are nearly constant as noted above.

Fig. 31



The contour above is the same data in the 3D graph.

Fig. 32